

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

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No. 2358.—VOL. L.

LONDON, SATURDAY, OCTOBER 30, 1880.

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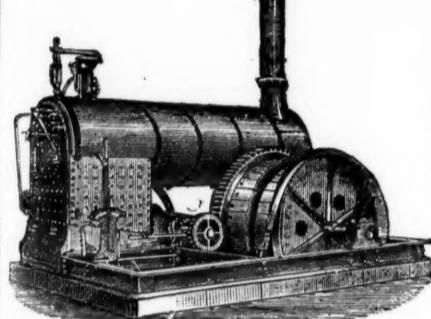
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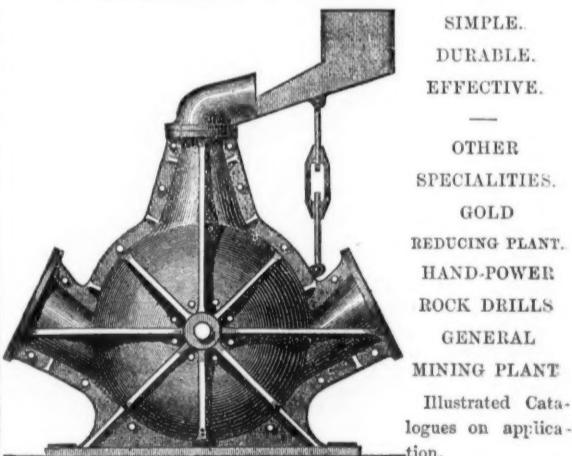
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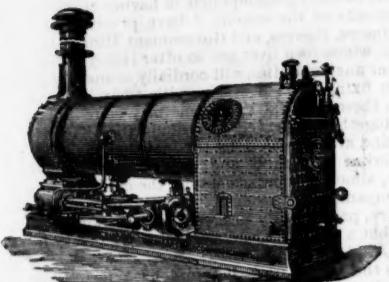
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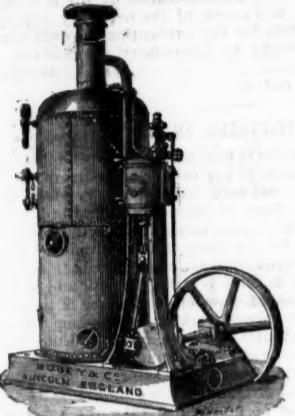
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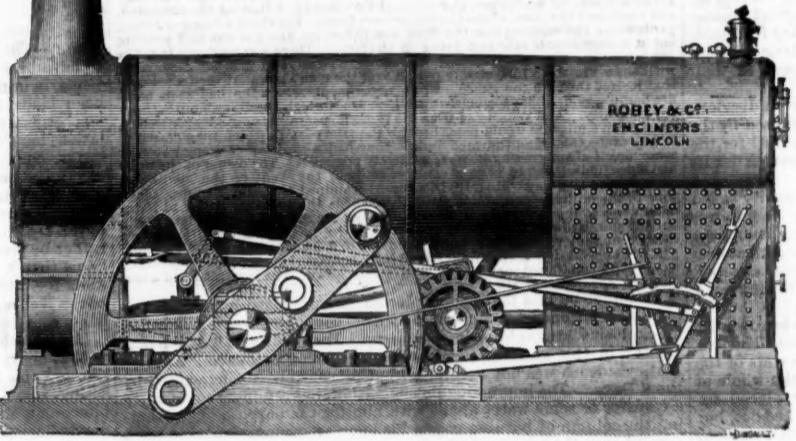
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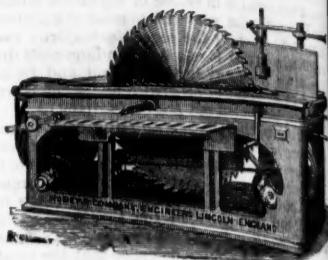


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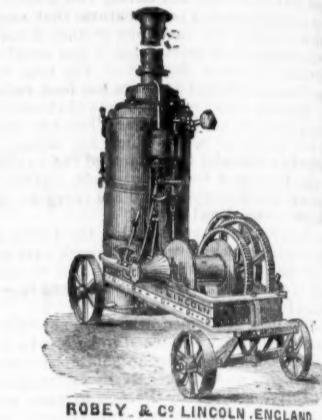


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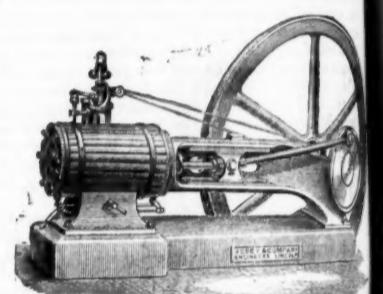


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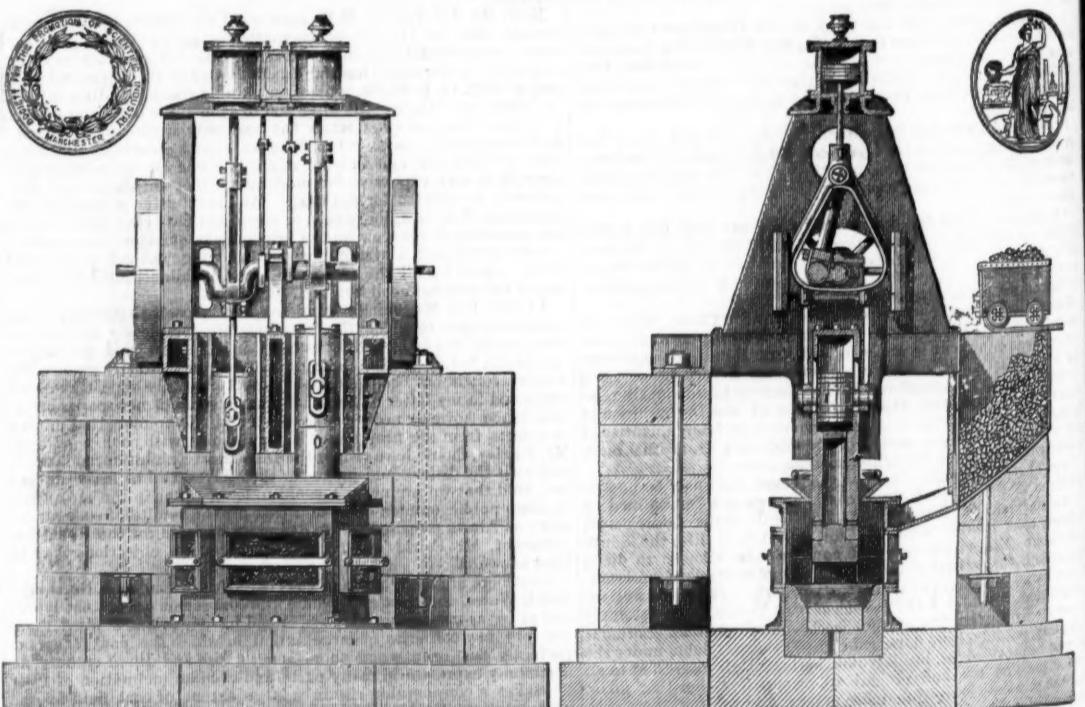


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Original Correspondence.

SOUTH STAFFORDSHIRE MINES DRAINAGE ACT.

SIR.—Whilst travelling in the wilds of Natal, inspecting and developing the unrecorded coal resources of this colony for the Government, my attention has been arrested by a notice in your paper that a memorial is in course of signature among the mine owners of the Tipton district, who wish to avail themselves of the saving clause in the Act, whereby the requisite majority may petition themselves out of it, so far as it relates to underground drainage, and so relieve themselves from any further rating, and from contracting any further debt by loans or otherwise under the powers of this ill-devised and badly administered Act of Parliament.

This course from the long-suffering coalowners cannot be surprising to anyone who has had the opportunity of watching for a series of years the extravagant outlay, and from time to time taken the trouble of studying the balance-sheets showing the revenue and expenditure of the Commissioners. Whatever may have been the philanthropic ideas of the promoters of the Act, it is certain that advantage was taken of the temporary coal famine of 1872, and that all opposition was patched up or borne down, so that the national calamity then in full force should not be identified by even the chance—not the certainty—of a small portion of the South Staffordshire and East Worcestershire coal field becoming water-logged. The hurriedly convened Act became law, and having had some seven or eight years to prove its usefulness it is not unnatural that enquiries should now be made as to what it has done, who or what it has really benefited, and to what extent it has proved that it was useful or useful, either to individuals or to those districts of the coal field where its right to control the underground drainage has been enforced.

1.—Have the commercial interests of those districts been benefited in any degree; or, on the contrary, has not the private enterprise, and bold individual action which has always been a chief characteristic of a coalmaster been stamped out by this arbitrary Bill, causing many to adopt a waiting attitude instead of pushing on their own draining and pumping, and the energetic development of their collieries in every detail?

2.—Have the mine owners within the Tipton and Bilston districts, whose private rights and vested interests were almost ignored by the Bill for the public good, been enabled to raise more coal for the benefit of the community during the time they have been under its operation?

3.—Have these gentlemen, who have not only been heavily taxed for underground and surface drainage, who now find themselves and their minerals loaded by an enormous mines drainage mortgage debt, contracted on their behalf by an irresponsible Commission—have they been assisted by the Act to raise and sell coal cheaper, or have they in any way been more able to cope with the difficulties of working their collieries than they were before it existed?

4.—Do not these gentlemen, and particularly those who own the largest areas of unworked coal in the Tipton and Bilston districts, see that if the working of the Act is prolonged and the powers of the Commissioners continued for a sufficient length of time the whole of the small collieries except those most advantageously placed for economical working will neither be drowned out nor worked out, but taxed out of existence. And from the time these properties cease to exist as working collieries and the plant cleared off they must cease to be chargeable with either the tonnage rates of the award or with their share of any accumulated debt; consequently, the final mortgage, with the entire cost of pumping, as well as the heavy incidental charges of working this Act must be encountered by those collieries continuing to raise coal, and these in all probability will belong to such large owners as the Earl of Dudley, Messrs. J. Williams and Co., &c.

5.—Legislation and other circumstances in recent years have caused it to be utterly impossible to work many of the valuable ironstones which formerly made South Staffordshire famous, and these same causes are and will continue to tell upon many of the thin and inferior coal seams of this coal field, and for all practical purposes a colliery will be exhausted whilst the ground still contains large quantities of coal.

6.—Can the efforts of either the Commissioners under this Act or of their Secretary arrest the gradual stoppage of these collieries, or postpone the time when a mine becomes unprofitable? Will not many of your readers declare that their works, if it is judged by the past, is more likely to hasten that period?

7.—Are the districts under the sway of the Commissioners more able to work coal or ironstone to a profit, and where they cannot be worked to profit they must soon cease to be worked altogether, than those districts of South Staffordshire that have already petitioned themselves out of, or were never brought under, the depressing influence of this Act?

I venture to submit that large quantities of good and cheap fuel are raised in other parts of the coalfield, uninfluenced by the heavy taxation of the Commissioners, for the use of the manufacturers, whose works or factories are situated in the water-logged Tipton and Bilston districts.

It is useless to repine and sentimentally deplore that this or that valuable coal should be left unworked, and any section of the community damaged by such an inevitable event when a coalfield or part is nearly exhausted. The whole affair is governed by competition, and the cost per ton of extraction.

There can be no doubt whatever that Cannock Chase, Bloxwich, Sandwell, Oldbury, and Aldridge will continue to supply fuel to the works of these or any other water-logged districts at a cheaper rate than it can be extracted from the old pits at their very gates. And if it should happen that Staffordshire coalmasters injudiciously raise prices above a certain level, the competition of the Derbyshire and Nottinghamshire coalfields is at once courted, and any quantity of good and cheap coal can and will be obtained from the more favoured collieries of these neighbouring counties.

I trust I have said enough to show that there need now be no further alarm that coal—and cheap coal, too—cannot be obtained by the manufacturers of Birmingham and South Staffordshire; and, therefore, after leading a useless and spendthrift life, the South Staffordshire Mines Drainage Act can well be allowed to die a natural death—or, perhaps, subside into an obsolete stage of existence, without having the power of doing further harm. It will be well for the coalfields generally if the coalmasters of Tipton and Bilston try to contentedly say that the surface works obtained at an enormous outlay may, possibly, have done some good; that all debts under the Act must be provided for, but it is now better for all interested to sit down at the first loss and prepare to recoup it rather than go on from bad to worse, borrowing more money, and adding thereby to the financial difficulties already made for us.

An Act of Parliament nominally intended to relieve coal mining, that having had a good chance has really done more to swamp it than the water ever did, can well be sacrificed for the benefit of the district; and no one can doubt but that private enterprise or combination by limited liability or otherwise will always be sufficient to deal with any pound of water providing there is a reasonable prospect of raising coal at prices that will compete with more favourable districts. No Act of Parliament, unless accompanied by a Government grant, can do more than this.

Although writing from the southern hemisphere upon this subject, I am sure that I am giving expression to the thoughts of many of my friends interested in the matter. My own interest, if any, and my best apology for having troubled you at this length, arises chiefly from being a partner in the firms known as the Brades Hall Colliery Company and the Rowley Hall Colliery Company, both situated within the Oldbury district of the Act, and I suppose we may be considered very fortunate in only having paid some £5000. for surface drainage rates, without having received the value of one penny or any advantage whatever from the working of the Act. What that sum might have been had we not exerted ourselves some years ago, and, together with a majority, petitioned the Oldbury district out of the underground drainage clauses, it is difficult to say, and I do not care to enquire, but content myself with sympathising with those in the Tipton district who have experienced the working of them. I trust they also will be able to throw off the yoke they

have so long borne, and henceforth determine to manage their own business in their own way.

F. W. NORTH,
Mining Engineer for the Government of Cape Colony and Natal.
Natal, South Africa, Sept. 22.

THE CAUSE OF COLLIERY EXPLOSIONS.

SIR.—How is it that in standard works on chemistry—Prof. Roscoe's well-known text-book, for instance—the "Davy" is still spoken of as a safe lamp? So long ago as 1855 the Davy lamp was exploded by Dr. Pereira and others before the Parliamentary Committee then sitting at the University of London to enquire into the causes of explosions in coal mines. In Dr. John Davy's collected edition of Sir Humphry's works, published a short time afterwards, the matter was referred to in the following terms:—"Relative to the experiments thus alluded to I may remark that the objection deduced from them against the safety-lamp cannot be considered valid, inasmuch as the author never intended that it should be subjected to a test not applicable to it in the mines for which it was designed. The explosions alluded to were produced by artifice and management, and under circumstances which cannot possibly occur in an explosive atmosphere in a colliery."—*Vide "Researches on Flame," collected works, vol. vi., page 129.*

In making this statement Dr. Davy overlooked the evidence of Mr. Mitcheson, a mine agent in Staffordshire; Mr. Wm. Forrester, an extensive viewer in that county; and Mr. John Roberts, who all gave evidence of explosions having actually taken place in mines through the gas passing at a rapid velocity right through the gauze of the Davy lamp. The following paragraph from the Newcastle Weekly Chronicle, May 3, 1873, affords a more recent illustration of the fallacy of the Davy theory:

THE SAFETY-LAMP DEFECTIVE.—Mr. Dickinson, Inspector of Coal Mines, attended an adjourned inquest, held on Tuesday, on the body of Andrew Matley, who was killed through an explosion at the Diamond Colliery, on March 30. Mr. Dickinson said he went down the pit on the Wednesday following the explosion, and examined the place where the lamps were found. For about a dozen or fifteen yards along the working face the floor was ripped up, and gas was still pouring out at a considerable rate and firing in the lamp. There was no doubt that the gas came from this rent, that it was a sudden outburst, and that the gas mixing with the air in the return airway passed over the men's lamps at such a velocity that it fired through the gauze. From experiments which he had seen made fire-damp would, under such circumstances, fire through the Davy lamp without any difficulty. At a velocity of from 400 to 500 ft. per minute, or 8 ft. per second, an explosive mixture would pass through the safety-lamp, which then ceased to be any protection; and the men unless they had a canister or some water, or some means of smothering it, were perfectly powerless. The owner of the mine had since undertaken to have a canister ready in the event of the men being overtaken in this way. He (Mr. Dickinson) examined the safety-lamps. They were of the ordinary description used throughout the country. One had 26 parallel wires to the inch and the other 28. Twenty-eight was the standard mesh, but the standard mesh would fire at the velocities he had named. It was very lucky that the gas fired as soon as it did, for if it had had time to fill a larger part of the workings there would have been a general explosion, which probably would have smothered men a quarter of a mile away. The jury returned a verdict of "Accidental Death."

It cannot be said that this explosion was produced by artifice and management under circumstances which could not possibly occur in an explosive atmosphere in a colliery. The verdict of "Accidental Death" in this case was against the weight of evidence. Andrew Matley's death was not accidental but preventable—being caused by the "Davy." The impracticable suggestion that a miner should carry a canister or some water about with him for the purpose of smothering the column of burning gas in his lamp seems more suitable for a comic paper than a coroner's inquest. The best guarantee against explosions is to prohibit the use of unsafe lamps. When will Mining Inspectors do this?—Addiscombe, Oct. 25. THOS. S. HORN.

COLLIERY EXPLOSIONS, AND THEIR PREVENTION.

SIR.—Nothing but the sense of irrepressible duty towards the bravest class of workmen—the coal miners, and their true and loyal companions in danger, the mining engineer and overmen, induced me to emerge from my privacy, and upon occasion of the late calamity at Seaham Colliery to venture upon the troubled sea of newspaper correspondence with a suggestion, so much at variance with English mining practices, for diminishing loss of human life and property, contained in my letter of Sept. 12, published in the Journal of Sept. 25. But having done so, I feel I must pay the penalty of at least answering any points which varied upon what the lay public so naturally consider good authority—may tend to weaken public opinion as to the necessity for, or the applicability of, the principle of ascensional ventilation suggested as a chief source for the evil in question.

Now Mr. J. S. Fairley, M.E., member of the Manchester Geological Society, who for 14 years of his youth was engaged as mining surveyor and assistant mining engineer to the full satisfaction of his employers in Germany, has published a letter in the Liverpool Mercury of Oct. 14, in which, whilst very kindly complimenting myself, he states, nevertheless, his intention to show "the absurdity of such a system being adopted when flat coal only is sure to be found." And then again he says—"I could make it quite clear to all that while this 'wetter sohle' system is an admirable one for steep-lying measures, it is very expensive for moderately steep measures, and altogether to be avoided for flat coal." And then, after a very full explanation of an imaginary case of steep and flat-lying coal, worked out according to his view on the principles in question, he concludes—

"To adopt such a system for our flat-lying coal collieries would be the signal for all the owners to become philanthropists, as they would for ever bid good bye to all dividends."

I regret that Mr. Fairley should express himself so strongly on an imaginary case to which the facts here are completely opposed, as some of the flat-lying collieries have of late years paid the largest dividends, but, in fact, the mining progress in the district since Mr. Fairley left it has been enormous, and I can only repeat the wish expressed in my letter of Sept. 12—that instead of newspaper correspondence, however necessary to awaken public opinion, that mining engineers from the fiery mines of Lancashire, with such a guide as Mr. Fairley, should have visited the Düsseldorf Exhibition, and should still visit the district and judge for themselves. As I at least, old as I am, hold that we are never too old to learn. But in the meantime, to keep public opinion open and free for the results of such an enquiry as I have proposed to the Secretary of State for the Home Department, Mr. Fairley's and many other general objections may be thus answered:

1.—There are many parts of the coal fields of England, North and South Wales, and Scotland, where the coal seams are not flat lying; and so far as my knowledge goes, or as I have read and studied, there are very few collieries of large extent in which the coal seams are perfectly flat or in which there is not a rise and dip of colliery, as commonly expressed in many parts, and even an inclination of 1° or 2° makes a considerable rise in a large extent of coal field for the accumulation of explosive gases.

2.—Falls of roof, falls in the goafs, make spaces to the rise of the seam or magazine of explosive gases sufficient to produce great calamities.

3.—Assuming an ascensional system of ventilation to be the best safeguard against explosions, as admitted by Mr. Fairley, then the works for that purpose must be clearly laid out according to the circumstances of each case in accordance with the principle, and not by any iron rule such as Mr. Fairley seems to apply to the words "wetter sohle."

4.—The expense will be regulated by the appropriateness of the plan and system adopted, and when properly carried out from the commencement does not, in fact, in this country injuriously increase the cost of production.

But to do justice to this question of expense one should compare the cost of the necessary works with the losses caused by explosions, not only of human life, but even on the narrower ground of stoppage of the colliery in such cases as Lund Hill, Oaks, Seaham, &c.

To me it is clear from one part of Mr. Fairley's letter, where he speaks out his own opinion (which has, I observe, been expressed also by others) "of the necessity for more shafts," and that the "wetter sohle" drifts are nothing more than so many shafts lying horizontally," that this is merely a misunderstanding of my letter of Sept. 12 to the Times and this Journal than an opposition sustained in the correspondence. I distinctly therein declared as the cardinal point—"providing independent means from the highest point of the workings to the rise of colliery by ascending passages and a 'wetter sohle'

drift for the safest and uninterrupted escape of explosive gases." Expressing myself thus in general terms to cover all classes of cases, but absolutely including, as my manuscript and sketches here show, in large collieries special shafts for the uninterrupted escape or draining off of the explosive gases by means independent of the ordinary ventilation.

I trust I shall not be deemed presumptuous in having called public attention to the necessity of the enquiry I have proposed; I trust that the mining engineers, viewers, and Government Mining Inspectors of Great Britain, whose own lives are so often risked in the performance of their ever anxious duties, will cordially co-operate either in the proposal or in fixing upon a system with their professional knowledge by which these dreadful explosions may be reduced to a minimum, if not altogether prevented. No doubt the difficulties in many parts of England are increased by the fact that the collieries in many cases are worked by tenants, and not by the real owners; whereas in Germany, almost without exception, the collieries are the properties of the companies or persons by whom they are worked, and who are, therefore, permanently interested in all improvements of the same, having but a small tax rate per ton of coal sold to pay to the Government.

I do not believe in the justice, and therefore have no confidence in the effect, of legislation which seeks to prevent the present calamities by making the employers in such mysterious and complicated cases of accidents as those which occur in coal mines responsible for the loss of lives of their workmen. The clear duty of the public who derive from both one of the great necessities of life is to assist by Government investigation, and supply of the necessary means therefore, in determining a system for the prevention of such accidents rather than limiting exertions to compulsory compensation after their occurrence.

WM. T. MULVANY.

ON SHOT-FIRING IN MINES

SIR.—The use of gunpowder in coal mines has so often been proved to have been a frequent cause of explosion of fire-damp, more particularly in the Lancashire coal field, that strenuous endeavours have been made from time to time to provide a substitute. Several mechanical appliances have been invented, and more stringent regulations have been adopted, for the firing of shots in mines; from the latter, coupled with improved ventilation, no doubt a measure of safety has been attained. But there is still great risk and impending danger, arising from the use of powder at the face of gateways in longwall work and also in narrow working, even when the ventilation is sufficient, as an outburst of gas may at any time occur, or rather be precipitated, in some mines by firing a shot. Practical men know that it is highly desirable that some safer method than firing shots for bringing down coal or blasting stone should be introduced, but as yet no substitute has been found to take the place of this dangerous explosive.

In Lancashire the custom is to blast without side cutting the coal, so that heavy charges of powder are requisite to bring it down; the result of this is that shots sometimes blow out the stemming without acting, as they are intended to do, in disintegrating the coal. A blown-out shot is supposed to produce the following effect, experiments having been made by different individuals which go to prove that in a pure atmosphere the flame may travel from 5 to 10 yards; miners usually consider they are safe when about 20 yards distant from the point where a shot is fired. But if the mine is dry and coal dust is present in the air the flame will probably travel 50 yards or more, and the force of the blast is much intensified in this case. It is considered the action of blown-out shots has the effect of exhausting gas from the face of the coal for a moment, and this may be ignited, and add to the force of the blast. Thus fire-damp in combination with coal dust may cause a serious explosion, and this may extend to other parts, where it may be accumulations of gas are standing, the result being a more extensive explosion. Supposing the coal in a heading has been undercut as well as sidecut, a charge of $\frac{1}{2}$ to $\frac{3}{4}$ lb. of powder is sufficient to bring down the coal, but when the side-cutting is not performed 2 lbs. of powder is frequently used, and the danger of a blown-out shot is more imminent.

It is contended by some that finely-divided coal dust will of itself cause an explosion in the same manner that violent explosions have occurred in flour mills, and large buildings have been destroyed from the flour dust in the air becoming ignited. From this it would appear that an explosion may result when a shot blows out into an atmosphere laden with coal dust without the presence of fire-damp, but this is an opinion not generally entertained. In the Crampton furnace, where fine coal dust is used as fuel, the coal being distilled as it is supplied into the furnace, produces the same inflammable gases, which igniting supply the flame and heat to the furnace; there is thus a small scale a gradual production of gas, which inflames as quickly as it is distilled from the coal in the form of dust.

The question arises whether some of the explosions in coal mines are caused by the ignition of fire-damp and coal dust through blown-out shots, as I have described, or from defective ventilation and the lodgement of gas in cavities and the highest parts of the roof; this may be a probable cause if careful examinations previous to lighting a shot have not been made. There is no doubt that coal dust intensifies very much the force of an explosion of fire-damp, and to avoid this difficulty the roads in some dry and dusty mines are watered as often as required to keep them in a damp state.

The idea of substituting mechanical action for the explosive action of powder has been tried, but no practical success has followed. In 1869 three patentees of coal-breaking machines were before the public—these were Mr. J. Grafton Jones, dated June, 1867, Mr. Ch. J. Chubb, dated May, 1868, and Mr. S. P. Bidder, associated with Mr. John Jones, whose patents are dated October and November, 1868. The principle of the machine patented by J. Grafton Jones was to drive a wedge between two blocks of steel; the wedge was driven by a hydraulic press and ram, the blocks of steel being connected by tension bars to the press. Area of ram 6 in.; stroke 9 in., with a pressure of 10 tons to an inch. A force of 60 tons could be exerted on the wedge, and with the expansion a force of 240 tons was exerted on the coal.

Chubb's machine was constructed of a bar of steel $4\frac{1}{2}$ in. diameter, 17 $\frac{1}{2}$ in. long, and six transverse holes bored in the bar 2 $\frac{1}{2}$ in. diameter; in each of these holes a ram is placed, these holes or cylinders being connected by a passage $\frac{1}{4}$ in. in diameter. A force pump being screwed to one end of the bar of steel, when put into action, forced the rams on each side. The rams on one side had a stroke of $\frac{1}{2}$ in., being prevented by collars from going too far; those on the other side had $1\frac{1}{2}$ in. stroke, provided with an escape hole to prevent the ram coming out. One man could apply a pressure of about 10 tons to a square inch; area of each ram 4 $\frac{1}{4}$ in. = 44 tons pressure, the united force being 264 tons.

The apparatus of Bidder and Jones—similar to that first described—consists of an hydraulic pump and ram working in a cylinder; to the latter is attached a strap of steel at each side, which takes the whole tensional strain of the pressure on the ram. The strap is so constructed as to be thrust into a bore in the coal of 3 in. diameter and 3 ft. length. At the further end two pieces or blocks are inserted between the sides of the strap. Two wedges are then thrust in between these blocks, and hydraulic pressure applied until driven in. If the coal is not thus brought down, the ram must be withdrawn again, and another wedge inserted between the first two; this process must be continued, if necessary, until the coal is brought down.

Associated with this is a drilling apparatus, consisting of a screw 4 ft. in length, 1 $\frac{1}{2}$ in. in diameter, to the end of which is attached the ordinary screwed drill of varied lengths, the drill being driven into the coal by one man turning a handle at the opposite end of the screw, or a ratchet brace may be used if there is not room for working the handle.

Drilling machines of a simple form are now much used in coal mines; at one colliery in South Durham more than half the miners have provided themselves with an improved drilling machine, the price of which is 17s. 6d., inclusive of two drills. It consists of a plank or stand, with three or four holes for the nut to rest against. When one drill has been driven by means of a handle into the coal the screw is reversed, and the machine is then ready for boring further into the coal with a longer drill. The Welsh drill is a still

ing, according to the archived documents, having suffered no deflection up to the last, what is to be inferred but that when mined under a continuation of them will be found intact? A mining set containing 11 lodges besides a mountain of auriferous jacotings, which jacotings is said by the English jacotings miners to be of great promise. In fact of the whole of the concession they speak in the most favourable and encouraging terms. The former workers, doubtless finding the surface opening so productive, satisfying their desires, paid no attention to the jacotings nor to any other place or thing. I will only add that I think that long, diligent, and extensive search must be made in distant pestiferous India ere mines of gold will be found equal to those of the Desiderio Mines so long and so successfully wrought, and left, as stated, from having crushed together, with all its wonted richness. Worked as mines proper, according to the Cornish method, and get under the crush, and there is every probability that great success will attend it.

JOHN LEAN.
42, King's-square, Goswell-road, Oct. 28,

CANADIAN MINING AND RAILWAY NOTES.

SIR.—I have just returned from a trip through the northern part of the county of Frontenac, Ontario. This county is next to the county of Hastings in mineral wealth, and it may be that the county of Frontenac will yet be shown to be richer than that of Hastings, when it is further developed. In Frontenac there are mines of iron, the Frontenac Lead Mine, and in the northern part a great quantity of iron pyrites containing gold. How far the new processes for getting gold out of iron pyrites will succeed is a question. In America there is Dr. Mearns' chlorination process, and in England a process which Mr. T. A. Readwin is interested in. So far as Canada is concerned we can furnish the material, but at present we have neither the skill or capital to make much use of the material.

Starting from Napanee with a good pair of horses we arrived at Tamworth, about 20 miles north, at 12 noon. A stop was made for two hours, and we are again on the road. Turning west we pass along a moderately good road to Erinville, and soon after get on the Addington Colonisation Road. This is a Government road, built for the convenience of the settlers, and to open up the country. It carries the traveller over the Bald Mountains, and in 26 miles you arrive at Mount Cloyne. The scenery along the route was not devoid of interest at this season of the year. The whole country years ago had been burnt over by fires, and the tall black spruce and pine trees rose up gaunt and haggard from the surface. But the shumach and undergrowth had grown up since the fire, and the bright red shumach mingled with the yellow and green of the other trees, gave the appearance of a beautiful carpet, out of which the black pines rose up. The colours are perfectly beautiful in our autumn, and on the lakes when the whole of the colours of the mountains are reflected in the glossy water the picture is one which few countries can surpass. Stopping one night at Cloyne, the next day brought us to the Cressey Silver Mine, on Marble Lake, township of Banie. This mine is a curious mixture of silver, antimony, lead, gold, and copper. It has been opened by means of a shaft for the distance of about 15 ft. The shaft is 5 ft. by 8 ft., and the wall on the south side has attached to it a coating of quartz of auro-pyritic ore. The shaft is sunk in the lead, and toward the north the extent of the lead is not ascertained. In the middle of the shaft a stringer of metal about 2 ft. in some places and narrowing down in others to an inch or less was taken out. This assayed—Silver, between \$40 and \$75 per ton; gold, \$4 to \$6; lead, 500 lbs.; antimony and copper. Almost all the iron pyrites in that section contain gold.

The expense of sinking the shaft with hand-power would be about \$10 a foot, but if we could get one of T. B. Jordan, Son, and Mehlé's hand-power rock drills of course it would materially diminish the expense. The quartz is hard, but the indications are exceedingly satisfactory. Almost all of the quartz is stained blue-black, like the quartz of the Ophir in Virginia City, Nevada Territory. What the mine will turn out it is impossible to say at present, but for a good mining venture the indications are extremely favourable. The mining lease of this property is held by Mr. Herbert C. Jones, barrister, Brockville, and some New York men are now investigating the conditions of the mine in order to take steps to get up a company, and have the whole property worked. The topography of the property is peculiar. It lies between Marble Lake on the west and Lake Mississagian on the east, and the whole ridge between the two lakes appears to be of the Havonian formation. That is the same formation as on the north shore of Lake Superior, where the Silver Islet Mine, Duncan, and other rich mines have been found. Altogether the Cressey Silver Mine of Canada is likely to become famous, and even with the present imperfect development is exceedingly interesting to the geologist and man of science.

The New Mexican Miner: I have received a copy of this paper published at Las Vegas, New Mexico. That country is likely to turn out exceedingly rich in gold and silver. If all the mines that are now being opened on both the east and the west sides of the Rocky Mountains should result in even moderate "ley," I do not know what the world will do with all the gold and silver produced. Here are two extracts from the paper:—

ADVANTAGES OF LAS VEGAS.—Las Vegas enjoys the advantage of lying not only in the centre of the territory in a mercantile and shipping sense, but also of being the centre of a region, extending from 40 to 175 miles in either direction. It is delightfully situated on either side of a small stream called the Rio Gallinas, and is composed of the old and new towns. The latter is chiefly populated by Americans, and to-day resounds with the din and tumult incident to the busy portions of the eastern cities. A little over a year ago it was a pasture ground. Today it has a population of nearly 2500, and constantly on the increase. Two of its business houses are outranked by but few of the great mercantile bazaars of St. Louis, Chicago, New York, or Boston. Their business comes up into the millions annually, and either house finds no difficulty in ordering and quickly disposing of goods by "train" load. Las Vegas has a number of hotels, two banks, the Las Vegas college, a number of private schools, half-a-dozen wood-working establishments, two flour mills, four printing offices with three power presses (there are only four in the entire territory), two daily papers two religious and two secular weeklies, two Mining Journal and a telephone line. A number of fine buildings are in the course of preparation, one a magnificent stone structure by the First National Bank is worth of any city, and another by the firm of T. Romero and Son worthy of mention. One of the largest houses in the Western States is the firm of Brown and Manzanares. Their warehouse is 437 ft. long, and they keep vast stocks of goods of every conceivable nature. To give an idea of the extent of the business transacted annually by this firm, it is only necessary to learn that they order goods by the car and train load, as many as 19 car loads of flour alone being received at one time. They employ in their counting-room ten men, in their store six men, in their warehouse eight men, and over 200 in freighting by mule and ox teams. They have established a large branch house at Socorro, under the personal supervision of Mr. M. W. Brown, the son of the oldest member of the firm. Messrs. Brown and Manzanares also transact a general banking business, and are interested in some of the most profitable mines in this territory.

GEOLGY A DESCRIPTIVE SCIENCE.—Delegate Maginnis was correct in his speech when he said that geology was a descriptive science. It can describe a mine, or a fissure, or a rock, or a stream after the pick and shovel have turned it up or laid it open. What did geology ever discover? Not mines in the Urals; they were found by accident. Not silver in the Andes; a goatherd found their toes with its ores. Not gold in California; Marshall found it in the tail race of a saw mill. Not gold in Australia; a California miner hunted for it and was successful. Not gold in Montana; a California miner hunted for it and was successful. Not gold in Brazil; or the Cape of Good Hope. What geologists ever found coal, or iron, or quicksilver, or silver, or gold, or precious stones? We have forgotten his name.—*Helena Independent.*—[We believe a "Yankee school-marm" who had wedded a farmer in New Hampshire discovered the veins in that region, all owing, it is stated, to her geological information. We wait for New England to speak.—Ebs.]

THE CANADA PACIFIC RAILWAY.—The report that Sir John A. McDonald had formed a syndicate in London composed of capitalists of England, France, Germany, and the United States to build this great road was received with pleasure here, and when Sir John himself arrived and was met by the "Cartier Club" at Hochelaga, then from his own lips the report was confirmed. The whole of the country was triumphant except those miserable Grits who have not left a stone unturned to thwart the scheme. The Hon. Ed. Blake has acted with a partisan spirit that time will not efface from the memory of Canadians. His speech at Ottawa last session was a mingled combination of ignorance and eloquence. All his facts and conclusions were wrong, while the speech itself was eloquent. Bad as was that attempt, it was worse to send that speech across the Atlantic and try to defeat the efforts of such statesmen as Sir John A. McDonald by circulating that mixture of special pleading. What did the Grits care? All they care for is the Grit party; and the benefit of the nation is a light thing in comparison. While they were in power they had to build the road at an enormous expense. Mr. Blake said

it would ruin the country; and when Sir John goes to England in order to get a syndicate to build the road what do these consistent "patriots" do but oppose him. The people of England will have their eyes open and be able in a few years to estimate the "Grits and the Globe" at their proper value.

BROCKVILLE, Oct. 8.

MINING IN QUEENSLAND—NEW TIN FIELDS.

SIR.—There has been within the past fortnight an extensive tin field discovered in this colony, situated about 30 miles from the coast, and about 200 miles north of Brisbane, about 70 miles south-west of Gladstone, and 30 miles north-west of Bundaberg—all ports on the eastern coast of this colony. The nearest water carriage is up Buffel Creek, which is a small tidal river, and has 6 ft. of water to within four miles of the prospector's lease. The stream tin is found on the bends of this Buffel Creek and its tributaries. The prospects are reported as from $\frac{1}{2}$ lb. to $\frac{1}{2}$ lb. to the dish—i.e., $\frac{1}{2}$ cwt. to 1 cwt. stream tin to the ton of wash dirt. This prospect is got all over the ground from the sod of the grass down to 16 ft., where heavy water was met with, and is as good on the tops of the ridges as down in the gullies. The whole of the country discovered so far is applied for on lease, under the liberal Mining Act in force in this colony, and so soon as the blocks are surveyed work will be proceeded with on all the leases at once—some 40 to 60 in number—the present price of tin encouraging miners to work.

This is the fourth large tin field now discovered in this colony. The first and oldest, Stanthorpe, is turning out about one-third more at present than it did last year, owing to the high price now ruling. The second, Cooktown field, is working well, Chinese being chiefly employed in raising and washing the stream tin. All the tin from this field is shipped from Cooktown, and has been steadily increasing for the past 18 months, and now yields about 50 tons per month. The third, Cairns, to the south of Cooktown 400 to 500 miles, is now being actively worked and turning out about 30 tons monthly. Both these fields will greatly increase their yield when the wet season comes in. Thus we have large tin tracts extending from the southern boundary of this colony at Stanthorpe, to the north at Cooktown, a distance of nearly 2000 miles.

Copper mining is improving, but still not a patch of what it should be. Gold is steady, silver increasing, and other minerals hardly touched. Antimony is still being raised in small quantities, and quicksilver is also being worked. Opals are causing some slight stir, late discoveries proving that in this line we are very rich.

The Parliament of Queensland has passed a resolution granting 5000/- bonus for the first 500 tons pig-iron smelted from Queensland ores. As we have unlimited coal and iron ores in the Brisbane district this ought to light a furnace.

RESIDENT.

Brisbane, Sept. 3.

COBAR COPPER MINE, NEW SOUTH WALES.

SIR.—After the customary vicissitudes of most mining enterprises, the above copper mine has at last proved itself such a success that the accompanying Government Inspector's report may be of interest to your readers, especially as some English capital is invested in it. Twelve months since its shares could be got for 10s.: now they readily fetch 76s., ex div., and it is believed are likely to go much higher.

On the same general line of country are the Nimgagee and Mount Hope Copper Mines, which, although as yet only prospecting ones, give every indication of being also very extensive and valuable; and as the railway is now going out yearly in that direction, cheaper transport will add still more to their value year by year.

Our Government mining geologist, Mr. Lamont Young, was also out there lately, and thinks very highly of the district for mining generally, and of the copper deposits in particular, so that a large and all but untried field of mineral wealth in our Far West adds another important item to the undeveloped resources of New South Wales.—*Sydney, New South Wales, Sept. 3.*

R. D. ADAMS.

THE MINERAL INDUSTRIES OF THE COBAR DISTRICT.

The Minister for Mines has received the following report from Mr. W. J. Slee, Inspector of Mines, dated Cobar, Aug. 25:—

SIR.—In submitting this my first report from the Cobar district I do myself the honour to inform you that Cobar can be reached by mail-coach once a week via Forbes, Euabalong, and Nimgagee Copper Mine, distance from Orange about 360 miles, and from Orange via Dubbo and Nyngan by mail-coach once a week about 300 miles, or about 550 miles from Sydney. The distance will be considerably shortened as soon as the Bourke Railway is opened as far as Nyngan, from which Cobar, distance 80 miles, over comparatively level country, could be connected by tramway. The greatest drawback to this otherwise flourishing township is the scanty communication with the metropolis. I am informed that during the winter months the flooding of the Lachlan and Bogong rivers often prevents the mails reaching here for two or three weeks, but the telegraph is now in course of erection, which will be a great boon to the inhabitants of the Cobar district. The country from Condobolin, but more so from Euabalong to Cobar, has the appearance of being highly auriferous; and probably what has hitherto been occupied as sheep-walks only will, in a few years' time, be dotted here and there by towns having for their inhabitants a prosperous mining population.

This part of New South Wales, although perhaps too dry for successful agricultural purposes, is likely, by the help of mining enterprise, to turn out large mineral wealth. When railways and tramways pierce these at present sparsely populated parts of our rich colony, then a new and prosperous area will be opened, and then Bogon, Cobar, and Lachlan district will largely contribute in placing New South Wales in the front rank of mineral producing countries.

Gold has been found at Gindar, and since my stay here I was shown copper-stained quartz impregnated with gold, which were obtained from a quartz reef 2 ft. 6 in. wide, at the depth of 30 ft. from surface, on block X, Honeybugle station, 15 miles from the Bogong river, about 15 miles south-western from Fanya station, and about 85 miles south-east of Cobar.

The Great Cobar Copper Mine, which is at present the most extensive metallic mine in New South Wales, must be visited on several occasions both above and below surface before anything like an opinion can be formed of its magnitude. The workings consist of three shafts—the south, or Renwick's shaft, the middle, or Burten's shaft, and the north, or Becker's shaft. The middle, or Burten's shaft, is now down to 54 fms., or 324 ft. This shaft is securely timbered; it is worked by cages; and speaking tubes lead down this shaft to every level, as well as to the engine-house. The lode at the bottom of this shaft is a rich yellow sulphite ore. I measured the width, which is fully 46 ft.

The north, or Becker's shaft, is also down 54 fms., on the bottom of which is a rich solid sulphite lode measuring 26 ft. in width; between the two shafts the distance is 600 ft.

From the south, or Renwick's, to Becker's shaft, the lode has been worked to 1160 ft. in length.

In the 26 fm. level the lode is 53 ft. wide, consisting of rich carbonates and grey ore. I measured the lode at different levels, where it consisted of oxides, carbonates, and grey ores, which averaged from 30 to 100 ft. in width. At the 47 fm., or 283 ft. level, the oxides, carbonates, and grey ore run out on a floor, a rich lode of yellow sulphites comes in.

The ore raised by this company during the last three years has been gradually on the increase, as the following statistics, kindly supplied me by Captain Dunstan, will prove:—

During half-year ending	Ore raised.	Ore smelted.	Output of fine cop.
Jan. 12, 1878.....	2,493 0	2,530	268
June 29	3,725 0	3,015	600
Jan. 11, 1879.....	5,099 18	4,738	888
June 28	5,675 13	5,610	881
Jan. 10, 1880.....	10,442 8	7,006	1061
June 26	10,287 0	8,334	1181
Total	37,722 17	34,869	4794

During the same time 49 fms. 3 ft. 10 in. have been sunk in shafts, and several fathoms have been driven in cross-cuts or ends; this is independent of the sinking of winzes, passes, &c. The machinery and other plant—40-horse power engine for winding, also driving circular saw, ore cracker, &c., 5-horse power engine for pumping water out of tanks for the use of the mine and furnaces, two ore crackers, one refining furnace, two roasting furnaces, ten reducing furnaces, and three reducing furnaces in course of erection, air compressor and appliances now erecting to drive three of Ford's patent rock-drills, blacksmiths' shops, offices, out-houses, also weighing bridge and 3536 ft. of iron-railed tramways.

The actual number of persons employed in and about the mine, leaving out carriers who take the copper to the railway station and bring supplies to Cobar, are—Miners underground, 168; smelters, 112; men at grass, including officers, carpenters, blacksmiths, brickmakers, and tank sinkers, 167; woodcutters and carters, 152; boys, 36—total, 635. The expense of properly securing this mine is very great; no less than 15 persons are on an average employed to do this work. The lode being so wide it cannot safely be done by the usual way of stulls, but it is secured by sections. Three permanent passes are connected with the surface, through which earth excavated from tanks is thrown to secure the workings; the tanks are intended to hold water for the use of the mine.

Although the board of directors are entitled to great credit for their pluck and good management in everything connected with this undoubtedly rich mine, they could not have brought it to such a successful issue without the assistance of a gentleman such as Capt. Dunstan, the mining manager of the Great Cobar Copper Mine, who has proved himself to be. Capt. Dunstan has not only the experience of an old miner, but he has also the ability, tact, and firmness of a ruler; he shows great judgment in selecting his men, and his underground captain (Captain Hicks) and the rest of his officers are a credit to the company. To this must be attributed the almost total absence of accidents in this mine, only one having occurred, and that an explosion of powder almost purely accidental. The ore is raised on contract under the Cornish system by public settings every two months. The estimate of the contracts is based on allowing good miners to earn

3/- per week. The contracting parties generally consist of from four to twelve men in each party; each man has to pay 2s. per month—2s. for doctor in case of sickness, and 1s. for the accident fund, from which any employee of the company receives 1/- per week in case he is unable to work through accident. Men who come in a drunken state to the mine, or are unable to do their work through incapacity or drunkenness, are at once discharged.

I have gone into detail in this report for the purpose of making our mineral resources and their working better understood and known to those who take an interest in the welfare of this rich colony, but I have confined myself to real facts concerning the Great Cobar Copper Mine, and have only noted what I saw by careful observation both above and below ground, without going into any supposition as to its future prospects, which the most sanguine would be unable at the present juncture to anticipate. The present population of Cobar, taking in a radius of three miles, cannot be less than 2000.

The New Cobar Copper Mine is situated about eight miles west of north from the Great Cobar Copper Mine. At present this is only a prospecting company. There are very good indications of a copper lode, as small bunches of copper are met with, which, if dressed, would realise 30 per cent.

I leave here for the Nimege Copper Mine, on which I will report before going to Forbes and Parkes.

W. H. J. SLEE, Inspector of Mines.

The Under-Secretary Department of Mines, Sydney.

THE NOUVEAU MONDE GOLD MINING COMPANY.

SIR.—At the meeting of shareholders, held in London in June last, it was intimated that another would be called in Paris in about two months thereafter, when full information would be given to them of all matters connected with the mine. No such meeting, as far as I know, has yet taken place, and it would appear from a letter in last week's Journal that no intelligence is to be obtained at the offices of the company. The mysterious silence thus observed naturally leads to the inference that there is a screw loose some where, and it seems to me to be incumbent on the part of the English direction to throw some light on their proceedings to allay the apprehensions of timid shareholders. Some of the latter are evidently behind the scenes, and it would be satisfactory if your correspondent who recently stated that the money for the purchase of the Nicanap Mine had been provided would let his fellow-shareholders know from what source he derived his information.

EDINBURGH, Oct. 27.

AN ORIGINAL SHAREHOLDER.

RUSSIAN COAL FIELDS—NO. VII.

RUSSIAN TRADE, ETC.

It may be interesting to your readers to state that there are large ironworks in the City of St. Petersburg—such as Baird's Ironworks, established by Scotchmen, but which I believe have been purchased by a French company, of which

[Oct. 30, 1880]

work is executed by the Groujgoenas, who inhabit the mountainous district of Nouka, and a little to the north on the southern boundary of Daghestan.—*London, Oct. 20.*

GOLD QUARTZ, AND ITS TREATMENT.

SIR.—In the Journal of the 16th inst. you inserted a letter on the above subject, signed by Fred. R. Stech, which I have not the least doubt was considered very interesting by the directors of the Republican Mountain Silver Mines. I read it with considerable interest, and I must say I was greatly amused and disappointed therewith. I was disappointed because, as Mr. Henry J. Moritz remarked in his letter last week, there was nothing new to be found in it except the electroplating process of copper plates with silver. I have heard of a process something similar to this having been tried before, but had been discarded for several reasons. This process of Mr. Stech's, however, may possibly at some time create a change in gold saving appliances. I was greatly amused with his letter, because nearly all of its contents may be read, and very much more to advantage, in any published treatise on gold quartz treatment.

Such letters, written with the object of giving advice to the boards of directors in the development of their properties, are open to severe criticism, and with your kind permission I will point out a few of the absurdities contained therein. Near the commencement Mr. Stech says—"And I herewith assure you that I only speak from actual experience." If, as he says, he only speaks from actual experience this letter of his shows his experience to be very shallow and exceedingly limited in the area of its application, or otherwise he is a bigoted theorist who believes only in the one way of working—that with which he is acquainted. As to publishing his processes, why there is nothing in them more than has been published years ago, and has also been public property the same length of time or even longer—always excepting the electroplating process. Mr. Stech proclaims his ability as a miner in stating—"The working of a mine is very simple." I could agree with him in this statement if he had added these words—to a practical miner. We know, however, that when a simpleton (in mining) attempts to work a mine he finds it simply more than he can do to make it pay under simple ordinary circumstances, and his employers along with himself will simply find that it ends in one of his so-called simple "fizzles" so far as he is concerned. Economical mining is the first great consideration, especially so in gold quartz mining, and to do so requires the ever changing application of several sciences to the exigencies which are of daily occurrence in every well conducted mine. Milling is but a secondary consideration, though really one of great importance. It only requires the carefully repeated application of one known process, when that process has been ascertained and decided on as best applicable to the material under treatment. Mr. Stech seems to abhor the Cornish pump in mines. It is a great pity that he did not give the quantity of water that had to be pumped out of the mine he mentions, and the horse power required to work the Knowle's pump when the 18-in. Cornish pump with 120-horse power engine could not cope with it. Perhaps if they had some one there who understood the Cornish pump it might have kept the water out. When I was in California I was sent for to look at the pumps in a mine where they were in a similar fix. The superintendent asked me to go down the shaft and see what pumps I thought would be best for them, as they could not keep the water with what they had there, and were going to take them out. I went down and saw at a glance that no one there knew anything of the pump, for it had got out of repair, and, after making the necessary repairs and a few alterations, these same pumps kept out the same amount of water with working three hours out of the 24 except when sinking. Probably I have had more experience with different kinds of pumps than ever Mr. Stech has had, or ever will have, and I have nothing to say against any particular kind of pumps. There are many kinds better than the Cornish pump for certain places and different purposes, but I may venture to remind Mr. Stech that long after he has ceased to pump nonsense into the heads of silly directors the Cornish pump will supersede all others in principle for general mineral mining purposes, and directors who listen to such advice and introduce other pumps into mineral mines except under extraordinary circumstances will find it a losing game in the long run.

Mr. Stech says, and he says truly, that "the common way of milling the ore gives in most cases under 50 per cent. of the gold contained in the rock." It is a great pity that he did not enlighten the directors a little more by stating what percentage of ore he has been able to extract; for, on reading his letter through, one cannot help being struck with the idea that he intended it to be understood that he extracted all the gold there was in it. I could tell him where over '80 per cent. of the gold, as determined by assay, has been extracted, and that with the stamping mill system, which he would entirely supersede, and also without amalgamated plates of any kind, or amalgamation in the battery, and with less loss of mercury, probably, than he would be inclined to believe; loss of mercury, however, he says nothing of. His idea of the crusher and pan system has been exploded high enough many years ago, although it has been proved that small parcels of very rich ore give better returns of gold; but the increase of gold does not compensate for the extra cost of working; perhaps after he has satisfied himself on this point he will advise the general adoption of the old Mexican arrastre, and the importation of the stone from Mexico for the millers. Many mine "fizzles"—as he calls them—have been so termed through the owners not knowing how to mill the ore; but a great many more have turned up so through one idea men like himself recommending and putting up machinery totally unsuited to the class of rock to be treated, and improperly working the mine at the same time. Mr. Stech states that "the chlorination process is the most complete for gold working, but only certain classes of ore can be treated successfully by this process;" now, if only certain classes of ore can be treated by it how is it the most complete? This process, as well as the Stetefeldt process, was designed for working certain classes of ores, and for those classes of ore are the best, but for other classes of ore they are a dead letter and totally inapplicable; therefore neither can be the most complete process. Mr. Stech's description of the battery box or mortar is very graphic indeed, and his experience in this matter, whether copied or real, is very much to the point, though the assertion that millmen, millwrights, and mechanics have no idea of the advantages to be derived from the stampers falling in the rotation he gives is, I think, a great presumption on his part; he seems to imagine that the idea is his own invention; let me tell him that this simple arrangement, and the advantages to be derived from it, according to his idea, and also other advantages of which, probably, he is not aware, were known and utilised many years before he knew what a stamps was like, or what it was used for. The stamps is of itself a rough and rude piece of mechanism, yet it is capable of more delicate manipulation than a great many imagine, and more than Mr. Stech is aware of, or he would not advocate its disuse in the treatment of gold ore.

treatment of gold quartz.

Mr. Stech universally advocates the use of amalgamating plates in the battery as well as the use of quicksilver. I wonder if he ever had to treat ores that would not amalgamate in the battery, or those which caused the mercury to flour and sicken, and what he would do in such a case. I have never been able to ascertain by any means where amalgamation in the battery possesses any decided advantages over stamping without, except in some special cases, and I know that stamping free possesses many advantages with most ores. Amalgamated plates do not answer in all cases either, even after the pulp has left the battery, and especially so in hot climates; and the idea of contracting the width of the plate, and thereby cause the water and pulp to flow more freely, is an idea which few would adopt; the absurdity is evident to any practical mind. As there are different modes of first treatment suitable to different classes of ore, so there are different processes for concentrating the tailings, and the practical man will soon adopt the system best suited to it. The only items of really any importance contained in that letter are these—"The thorough working of a mine and a quartz mill consists of constantly taking care of small and apparently trifling repetition of work;" and, also, that "the superintendent should absolutely understand every department of the work to be done by his workmen, even his engineers, so thoroughly himself that he at any time should

be able to show his workmen how to do anything he may require to be done." No one could endorse these statements more thoroughly, or with more hearty free will, than myself; and if directors were a little more particular in engaging for their managers men who combined these qualities there would be fewer mine "fizzles" to be talked of, and I fear in that case Mr. Stech would find himself one of the outsiders.

Undoubtedly, all those who know little or nothing of the subject treated will consider that this letter of Mr. Stech's contains a great deal of valuable information, but to any practical man it suggests a great jumble of absurdities, and as such is calculated to mislead the most weary if ignorant of the subject; and the sooner such writers are pumped out, and their contents let run to waste, the better will it be for mining and mineowners. The idea of laying down as universally applicable any one process for gold quartz treatment is the greatest absurdity imaginable. It needs not a great stretch of imagination to foretell the end of any ordinary mine entrusted to such a man to manage. No man of practical experience would recommend any class of machinery, or any process for the preparation of minerals for any particular place, before he had made himself acquainted with its position, natural advantages, and its requirements.

GOLD NOT GILT.

PRACTICAL EDUCATION FOR MINERS—No. I.

SIR.—In my last letter I promised to let you know what I thought more necessary in the education of the miner than anything related to the sciences I therein mentioned. The use of the blow-pipe—which I omitted to mention in my last—I consider would be found of more practical use to the miner than a knowledge of chemistry. Although the application of the blow-pipe requires considerable experience and practice, yet, when once mastered, the results are as definite as those of chemical experiments, inasmuch as the miner requires to know. The small amount of technicalities connected therewith, and the extreme portability of the re-agents and appliances required for its manipulation, combined with the facilities with which it can be used, places it more at the command of the miner, especially in travelling. Nevertheless, I do not consider it absolutely necessary to the education of the miner, although it might be a source of pleasure to him, and at some time, perhaps, actually of some benefit; yet as a mine manager his time would be so much occupied with other things that he would be able to devote but little time to it either as a source of profit or pleasure.

In speaking or writing of the education of miners it naturally refers to working miners, and to the education of working miners I direct my remarks—for no man can be a miner who has not been or is a working miner; and I hold that no man is competent to properly manage a mine, wherever situated, who has not been a working miner. I have no wish to fall out with thorough education, because I value the little I know too much for that; but I care not whether a man has been educated at the Royal School of Mines in London, or at Freiburg, or at any other mining university, if he has not had the practical experience of a working miner, and that under varied circumstances, he is not one to be trusted with the management of a mine at home or abroad. Almost any intelligent man may learn the names of the stars and planets, and he may be able to point out their positions in the heavens, and tell their respective distances from the sun, and may make himself conspicuous among his friends and admirers; yet he would be no more of an astronomer than one who knew not the name or position of a single star or planet. So a man may be fully conversant with all the technicalities of mining, and be able to talk of this and argue of that, and write a very lengthy epistle on the subject of mining. He may have been underground a few times in different mines; he may have sniffed powder-smoke, got his feet wet in the sump, nearly knocked his head off against the back of a level; he may have had his face smeared with clay and candle-grease, and blackened and stained his dainty hands with the staves of ladders; he might be able to pass a first-class examination on paper—but put him into the mine, and he could not direct a workman how to place a piece of timber to support a piece of shaky ground, or a set of bearers for a pump-lift, neither could he direct native workmen abroad in the use of mining tools or in the general work of a mine. Neither is a miner—however good—raw from the mine a fit man to take the management of a mine; and I hold that a practically educated miner is a better man to manage a mine than any number of theorists, however high their education. It is a generally established idea that to become a good workman in any mechanical trade several years have to be spent in acquiring the necessary knowledge and practice; and, after all, some never make good workmen, and very few are competent to take the management of their respective works. The same with regard to miners. It takes some years of experience before a miner can take his position as a thorough workman in any part of a mine, and under any circumstances. Some miners can never do it, and few are those who are really competent to take the management of a mine, because a great number lack the necessary education.

Now, suppose a working miner to possess all the natural abilities and qualities to make a good manager, what other qualifications are necessary? In the ordinary acceptance of this term to know that

necessary? In the ordinary acceptance of this term to know that he had a good mine would be the best qualification; as, however, old moons do not make new cheese neither do good mines make good managers. An old gentleman once remarked to me—"Any fool can make a great name managing a good mine, but it takes the best of managers to make a good name in managing a poor mine." I once visited a mine in a very remote situation. The manager was a very nice gentleman, and treated me very respectfully; he showed me all over the mine, and explained everything to me. He was a technical school educated miner, and knew nothing of practical mining, yet he was considered by his directors as a paragon on all mining matters, and that no one in the world could work a mine like he could; but for all that he could not make the mine pay. However, he knew there that he could not make things run smoothly; so, as he was explaining this and that to me, he made many apologies for its not being exactly as he would wish, and excused himself by remarking that the mine was so far away from any other mine that he had no precedent to copy from. I pitied this poor mine manager as much as I pitied the directors and shareholders. Had they sent a thorough practical miner there in the first place this mine would have paid almost from the first, as subsequent experience has proved. A manager of a mine should be a long way above requiring an example to copy from in working his mine. He should be able to work everything according to circumstances—for what may be economy in one mine may be wasteful extravagance in another. He should be able to build his own model as he went along; and to enable a mine manager to do this his education should be conducted in such a manner as would tend to give him that practical insight into matters as to call forth the full energy of his reasoning powers under every emergency, and enable him to employ his knowledge to suit every circumstance in which he may be placed. What kind of education does

in which may be passed. In what manner does a miner require to enable him to do this? In what manner is this education to be imparted to the working miner? It can only be done by a good sound practical education, soundly and practically imparted. A miner's education should embrace practical mining *per se*; theoretical mining as applied to practice; hydrostatics and hydrodynamics; strength, weights, selection, and application of materials; the construction and application of the steam-engine and other mechanical motors; surveying and levelling; mapping and mechanical drawing; practical assaying; concentration and preparation of ores; the application of geology, mineralogy, and chemistry to practical mining; the application and use of the blow-pipe; book-keeping, financial matters, and general administration of mines. This list seems to contain a great deal to attempt to cram into a miner after his working hours; so it is, but a man who has not a practical knowledge of all these is not competent to take the management of a mine. As nothing can be acquired without hard work and perseverance, neither can the working miner aspire to be a competent manager without hard work in the mine and hard study out of it. Although this list of requirements, which I consider necessary to the miner, seems so formidable it is within the reach of everyone who desires it, and is what any intelligent man may even master without a teacher; but, with judicious lectures and competent explanations, he might acquire a sufficient knowledge of all these in a

remarkably short time. In a future letter I will explain the method I would adopt in educating the miner.

MINING—PRACTICAL AND THEORETICAL.

SIR.—I should not have troubled you again on this subject if your correspondent, Mr. John Lean, had not personally alluded to me. He assumes that the advocates of "theoretical and practical mining" are crushed by the letter of "Gold not Gilt," but in his he is greatly mistaken. He has failed to understand the drift of the latter's remarks. "Gold not Gilt" says that "theory and practice work harmoniously together when combined in one individual." This is my contention, and it is the contention of "Nemesis." I understand "Gold not Gilt" at all his aim is to show that purely theoretical men are incapable of managing mines. This I grant before "Gold not Gilt" appeared on the scene. "A Practical Miner" has not answered my last letter, or the letter of "Nemesis"; therefore, Mr. Lean's allusion to a sledge-hammer is a singular unfortunate one. Mr. Lean declares that I am not well versed on the subject on which I wrote. Assertion is one and an easy thing, but proof is another, and often not quite such an easy thing. I am anxious to know where I have erred, and shall be grateful to your correspondent if he will take the trouble to inform me. Mr. Lean very successfully blows his own trumpet—the sole accomplishment of some practical men—so successfully, indeed, that one is almost inclined to think him the "Practical Miner" himself who was silenced a short time ago.

Your correspondent applies the word "pretenders" to men like Mr. George Attwood, who has had a sound theoretical and practical education. But he shows bad judgment in the use of this word, for I ask—who are the pretenders? Men who, after several years study and practice, turn their knowledge to account and profit; or men who, having assisted to drive levels, sink shafts, and stopes are away for part or most of their lives, suddenly become mine managers, and with no education at all, pretend to know everything? Mr. Lean, in his desperate attack on Mr. Attwood, who can well take care of himself, unhappily alludes to slides. Dislocations or heaves are the very things that most upset a practical miner's calculations. They are often the rock on which his reputation splits. He has, perhaps, learnt in a certain district that to find the heaved portion of a lode you must turn to the right or left hand, or that the lode will be found on the side of the lesser or greater angle; but remove him from his own district, and he is utterly at fault. He then discovers to his dismay that his rule is not absolute, and does not apply to every district. The miner with a knowledge of his science falls back upon Schmidt's rule, which holds good in the great majority of cases that came under his notice, and, therefore, in at least he is superior to the simply practical man. One cannot help noticing that the spirit of writers who are practical only—that is, who have no knowledge except by rule of thumb—chafe when they are speaking of scientific or technical education for miners. They are too old, too lazy, or too bigoted to obtain such knowledge. Their days are numbered, and they know it too well. Such men are doomed to disappear before the triumphant march of science.

E. HALSE, A.R.S.M.

THEN AND NOW—No. III

SIR.—My letters on this subject, which you have kindly given insertion to in your valuable Journal, partake of the qualities attributed to angels' visits, being few and far between, my two previous communications bearing date Dec 27 and April 17 respectively. Since my last the Indian gold epidemic has, probably, reached its crisis of the disease, and that remarkable class of British investors who completely ignore the vast mineral treasures of our own land in favour of foreign enterprise have satiated themselves with Indian gold mines; and, having contributed something like a million of money on the faith of a few reports from scientific parties, are now quietly enjoying a mixture of repentance and fear during the realisation or annihilation of their hopes. I do not doubt the existence of gold in India, to do so would be contrary to the history of the country; but it has yet to be proved that it can be profitably paid, and it is but a few weeks since a letter appeared in a daily paper, and was subsequently inserted in the *Mining Journal*, in which the writer very plainly stated that the quartz would not pay to crush. Be this as it may, the public are fairly embarked on the speculation, which I consider is less idiotic than the rush for small plots of land in Nevada called silver mines, which with sweet simplicity they favoured so exceptionally only a few years ago. While speculators in Indian gold mines are patiently awaiting between hope and fear the results of their investments the other class, who throw in their lot with the mineral development of their own land, are not only, as a rule, doing well for themselves, but are also the means of giving employment to a most industrious class of their fellow-countrymen—men who toil early and late, and carry their lives in their own hands; men who contribute by hard labour not only to the comfort of our firesides, but in a great degree to the building up of our national wealth. Winter, we may say is now upon us, and how many little homes in the bleak and cheerless mining districts are dependent upon this great industry to keep the pangs of starvation from their doors. When we consider this, and bear in mind also that no finer or more remunerative field offers for the employment of capital than legitimate home mining, that it is one of those grand sources of prosperity which blesses him who gives and him who takes, then I consider we establish a chain in favour of home mining which no foreign ventures can maintain. With returning prosperity new enterprises are starting up with a fecundity which reminds one of the usual over-straining of speculation, which always now marks an era of plentifulness in the money market and elasticity in trade. In old times it was thought clever for a single firm to successfully launch one or two enterprises in the course of a year, but lately it has been announced that one enterprising firm had no less than 13 on hand. If they all turn out well, which I trust they may, the promoters are national benefactors. Beyond the turn of speculation to India there does not seem to be quite as much of a run as usual for foreign undertakings, and if this means a larger employment of capital in home enterprises it is at least a possible sign of a falling off in the partiality generally shown in the purchase of foreign lands.

To be successful in investments in Welsh mining enterprises few simple rules are sufficient to guide you. A celebrated writer once said, "Tell me who your companions are, and I will tell you your character," and the following out of the idea may be applied in more ways than one to all mining enterprises. At present the feeling towards Welsh mining seems to favour Cardiganshire, which is probably the most highly mineralised county in the Principality, and at the present time the most productive one. The old Lisburne Mine still continues to make large returns, and to pay good dividends, while Frongoch, Grogwinion, South Darren, and others, are giving their respective proprietaries fair returns. Bwlch United, a progressive mine, and only non-dividend from a sufficient time not having elapsed since the completion of the floors for dressing the ore, to which may also be added a short supply of water, and some little difficulty in the arrangement of the machinery, is one of the finest mines in the county, and is thoroughly well managed. The important discovery which took place in this mine last week in the 50 fm. level we have by no means heard the last of, and I have every reason to believe that Bwlch will not be second to any mine in the county. There is another mine, under the same management as Bwlch United, which deserves mention, although only lately started. West Lisburne, on the same lode as the Lisburne, should very speedily give a good account

of itself; it has many advantages. Ample capital to develop it, first-class management, to which may be added that a great deal of necessary preliminary work is done, four shafts sunk and five levels driven at 8, 14, 24, 36 and 46 fms. depth respectively, and when the mine was stopped working through the death of the former proprietor, it was left productive, so that the new company commence their career under exceptionally favourable and promising circumstances.

W. B. COBB,

Bishopsgate-street, Oct. 28.

THE LEAD TRADE.

SIR.—Since our last the following sales are reported:—

50 tons Yorkshire lead.....	£15 0 0
200 tons Northumberland (over six months).	15 5 0
200 tons Yorkshire (prompt).	15 5 0
270 tons rich Spanish.....	15 13 9
60 tons Richmond.....	15 7 6

Silver-lead is in good demand, and all the near parcels are bought, importers are now asking 16*l.* German lead is offering rather freely over the first six months of next year, at 15*l.* 10*s.* to 15*l.* 7*s.* 6*d.*, and this has a tendency to keep down prices. Some have taken as many orders as they want, and will not sell any more. Greek lead: There is a steamer with 600 tons on the way, and will be sold the end of this week.—Oct. 27.

STOCKS

SIMPLE PROBLEM.

SIR.—In last week's Journal your correspondent, "X.", states a question as having arisen on a foreign mine—which in not being able to solve the officers of the company proved themselves very ignorant indeed. I give you here a simple practical solution, and, as it will in part demonstrate the system of practical information I would impart to working miners, perhaps you will think this solution as well worth publishing as the question itself.

QUESTION.—100 tons of 10 per cent. ore to be dressed up to 25 per cent., with 3 per cent. in the waste, what quantity of 25 per cent. ore will there be?

Assume 100 tons of ore to be worth 10*l.* per ton = 1000*l.* Now, 100*l.* worth of ore, at 25*l.* per ton, will be just 40 tons, which would leave 60 tons of waste; this waste having to contain 3 per cent. of ore would be worth 3*l.* per ton; 60 tons at 3*l.* = 180*l.* 180*l.* worth of ore at 25*l.* per ton = 72 tons; subtract this from 40 leaves 32.8 tons. Now, we find 32.8 tons at 25*l.* = 820*l.*; and 67.2 tons of waste at 3*l.* = 201*l.* 6*s.* 820*l.* + 201*l.* 6*s.* = 1021*l.* 6*s.*, which is evidently too much by 21*l.* 6*s.* (as we have only 1000*l.* worth of ore to start with), or nearly the price of 1 ton of ore at 25*l.* Therefore, reject the decimals, and the answer is nearly 32 tons, which is good enough for any practical purpose. Anyone wishing the correct answer can easily find by this simple method of assumption that 31,818 tons of ore at 25*l.* per ton = 795,45*l.*, and 68,182 tons of 3 per cent. waste at 3*l.* per ton = 204,546*l.* 795,45*l.* + 204,546*l.* = 999,996*l.*, or 118,182 tons of 25 per cent. ore. By this simple method of exposition the idea of difficulty is dispelled, and arithmetic and algebra lose half their terrors by losing all their mystery, and the same may be said of all the other sciences which are necessary and requisite to the miner.

GOLD NOT GILT.

A SIMPLE PROBLEM.

SIR.—It would seem from numerous letters which have appeared from time to time in the Journal that mining men are esteemed as knowing next to nothing, as is again exemplified by the unpractical problem submitted by a correspondent who signed himself "X." in the Supplement to last week's Journal. The question is merely one for a schoolboy, and never, so far as my experience has extended, has been resorted to as a preliminary to practice. The loss of ore in dressing being a result of practical operations, and not as I have already intimated, a preliminary precedent thereto. If the officials of a foreign mine were somewhat disconcerted by the so-called problem it must, I presume, have been from its overshadowing simplicity and the strangeness of its introduction as a practical question. If 100 tons of 10 per cent. ore were not only subject to but sustained a loss of 3 per cent. in manipulating them to 25 per cent., 28 tons would be the resulting product, as anyone at all conversant with figures may easily determine by the rule of simple proportion—thus, 10—3 = 7 + 100 + 25 = 28 tons.

ROBERT KNAPP.

Llanwrin Lead Mine, Oct. 27.

SPURIOUS MINING.

SIR.—As you are so kind as always so fully and completely to publish my letters, I will not now trouble you with a long one. Sad were the complaints which appeared in the Supplement to the Journal of Sept. 25 relative to the Emma Mine, first detailing its origin, its original abundant riches, and then its fatal collapse, occasioned, as alleged, through the incompetence of the managers, enough, one might reasonably suppose, to put people on their guard as to whom they employed for such a purpose; but there appears to be another mine now essayed to be resuscitated under kindred auspices; I allude to the Last Chance—the man sent out to report upon and manage which is, I believe, of the category of those who are charged with the downfall of the Emma. I know Mr. Adley, and as a man I believe that no one will attempt to question his respectability, but so far as I know he has had no more experience of mining than the "eminent authority" just now sent out: and who or what is that infallible oracle, "Our chairman?" Of what is he a professor? Certainly he should not be of mining! Was he ever a miner, or does he know aught of mining phenomena? I tell you, Nay! and yet these are the authorities on which the Last Chance is essayed to be resuscitated. Thus it is that mines set on foot under such conditions become a scandal to legitimate mining; they come to grief, collapse, and ruin; capital is squandered and lost, and how often does it occur that the poor dupes who have, through the plausible insinuations and representations of designing pretenders, been beguiled into the laying out of their money under such conditions, are heard to relate the tale of their having been victimised.

Professor! I some time ago travelled in Spain and Italy in company with one of our most eminently acknowledged professors, a most gentlemanly man, and of world-wide renown as a mining authority, but whom death has recently removed from amongst us, in the inspection of mines, and as it is said that the drowning man eagerly matches at a straw, so was my friend equally eager to catch at any remark of mine relative to the mines which we had to inspect; and in the railway carriage, when returning from Paris to Calais, he said to me, "If people wish to employ me as a mining engineer am I to say that I know nothing at all about it?" The highest reputed professors may pretend to tell you how and when the world was made, but their pretensions as to a knowledge of mining is a fallacy.

JOHN LEAN.

CORNISH MINING—ITS UNWRUGHT GROUND.

SIR.—The wonderful chambers of wealth hidden in the earth only become developed through perseverance, scientific skill, and practical expenditure of money. The mines of Cornwall (copper and tin only) produced from the year 1804 to 1874, a period of seventy years, the vast amount of 84,135,672*l.* (Stannaries returns). These figures of produce sold prove increasing discoveries of mineral from extended development, and it is on this ground that I have always given preference to the working of new sections of ground. Some weeks since, I stated in one of my letters that "I have now before me statistics of eight mines, within a radius of two miles, which divided an aggregate profit of 1,723,000*l.*, and that the working of same lodges in new ground gives greater chances of success, and with less risk than deep watery mines, and that around those rich mines a few may be selected (selling at a very low market price) likely to prove as long very productive, and add prizes to their number." This opinion, to a great extent, has since been confirmed from the fact of an important discovery of tin in Mount Carbis Mine, where a lode has been cut at 27 fathoms deep from 4 to 6 ft. wide, and worth 50*l.* per fathom, showing the outcrop of another of those great deposits of mineral which have gained for the mines of the district a world-wide celebrity, it being well known that many of the leading Cornish families are indebted to them for their influential

positions and wealth. While on the subject, I would mention another mine in new ground which I believe will ere long prove by its yield to be one of great value—West Poldice United, in Gwennap, with all the characteristics essential to the formation of deposits of mineral, having the same country formation as the surrounding rich mines, together with same veins and cross veins. The probabilities are in favour of its proving such a rich mine as will revive the remembrance of the brilliant era of Gwennap copper mining of former days, there being many old mines in the parish that have profited hundreds of thousands of pounds.

C. BAWDEN.

St. Day, Scorrier, Cornwall, Oct. 26.

LOD E OLOGY.

SIR.—Can any of your readers inform me, through the medium of the Journal, whether the word "lodology," used with parenthesis by Capt. Rutter in his speech while referring to lodes and the formation of tin, at the last West Seton meeting, is a suitable term to be applied for the doctrine of lodes, and also if the word has ever been applied by any previous speakers or writers when referring to the metallic veins of Cornwall and elsewhere?

B. S. J.

COMPARISONS.

SIR.—I am sorry if my letter of last week has called forth expressions of regret. It was written in the ordinary routine of my City work, and it was really the result of my reflections on comparisons made by other people. I am the last man to endeavour to retard enterprise, but when I see attention drawn to districts which have been almost complete failures at the expense of districts which have amply rewarded all who have stuck to them I speak, and with your kind permission shall continue to do so.

Walbrook, E.C.

JOHN B. REYNOLDS.

COOK'S KITCHEN MINE.

SIR.—In last Saturday's Journal Mr. R. Symons has erroneously stated that Cook's Kitchen has not paid dividends for 80 years. The facts are it paid from—

1861 to 1862 £ 3,307 10 0

1868 to 1873 25,235 0 0 = £28,542 10 0

Mr. Symons adds, "New Cook's Kitchen is a poor thing." Now, it is very far from being correct, as the mine has two good ends for copper and tin in the bottom levels, and shares are marketable at 8*l.* 6*s.* 17*l.* 6*s.* paid).—Oct. 27.

OLD MINER.

ILLOGAN, AND ITS MINES.

SIR.—While your correspondent, R. Symons, continues to spin yarns about some ancient family or some old "bal," the existence of which has passed out of the memory of living man, it matters little whether they are true or false in detail, but when he comes down to modern times, and makes gross blunders and erroneous statements about mines now working, he is sure to get into hot water. Last week he says—"Cook's Kitchen anciently yielded large profits, but none have been given for nearly 80 years." As a matter of fact, Cook's Kitchen divided 26,000*l.* profit from 1868 to 1872, and 40,000*l.* in 1862. Previous to this, it divided over a quarter of a million sterling as profits on copper and tin. The mine is at present opening out well.

Cook's Kitchen Mine, Oct. 27.

C. THOMAS.

ILLOGAN, AND ITS MINES.

SIR.—Noticing under this head in last week's Journal Mr. R. Symons' remarks on Cook's Kitchen Mine, asserting that it had not given any profit for nearly 80 years, I thought it wise and fair to outsiders to place the facts before them. Profits were given from May, 1861, to May, 1862, 33,072*l.* 10*s.*; from October, 1868, to June, 1873, 25,235*l.* total, 28,542*l.* 10*s.* By his rule, if Mr. R. Symons lives to the full age allotted to man, I shall expect to see, if alive, the announcement of his decease at the age of 900 years; and that Cook's Kitchen, from its present improved condition, having probably made its last call, will then, by the same rule, have paid 600,000*l.* in dividends, as it certainly will enter the list in 1881 as a dividend mine. This epistle in my opinion has two objects in view: 1st, to support the amalgamation of West Basset and South Frances, which no sane man in South Frances alone should entertain for one moment, unless he wants a millstone around his neck. Secondly, to depreciate the market value of Cook's Kitchen, the shares in which are very firm, and scarce in the market. New Cook's, I am told by authorities far more competent to judge than Mr. Symons, is a most promising young mine, now entering a rich course of ore with encouraging prospects of early profits.—Looe-withiel, Oct. 28.

J. H. DINGLE.

EAST CARADON MINE.

SIR.—In your notice of the meeting of this mine in last week's Journal it is stated that there was a debit balance of 300*l.*, whereas it should have been a balance in favour of the company. As I sent you the telegram I thought it right to point out this inaccuracy, which of course makes the position of the mine appear less favourable than is really the case. The actual balance shown to be in favour of the adventurers was 298*l.* 5*s.* 1*d.* The official report, which doubtless you have seen, is much more favourable than any that has been published for a long time.—London, Oct. 26.

EAST CARADON MINE.

SIR.—One is so frequently reading that East Caradons are to have a "big rise," that it sounds like the cry of "Wolf!" and nobody believes it. Tis true they did have a very big rise last winter, but why it would be difficult to say. The case is now, however, entirely different. A lode is again to be actively worked, which seems for a long time to have been overlooked, and from which, in the time when East Caradon was making such large profits, and paying such fine dividends, large quantities of ore were extracted; and this lode was only relinquished because others were discovered still more profitable. I state this on authority, and, should the results of the present working be what is confidently expected, East Caradon will again quickly pass from its present normal state of making calls to that of paying dividends. No better managed cost-book mine exists, and all liabilities are cleared at each quarterly meeting. Let a word to the wise be sufficient, for quotations will not long remain where they are now. The meeting last week passed off in a satisfactory manner, with a credit balance of 300*l.*

Oct. 28.

WEST BASSET, AND SOUTH FRANCES.

SIR.—I regret exceedingly that the Journal should be made the medium of spreading untruths. The writer of a mining circular quoted in last Saturday's *Mining Journal* says that "Capt. Abraham James stated at West Basset meeting that South Frances had more water in the mine than they could possibly contend with." Being present at the West Basset meeting I contradict the statement altogether. Capt. James was not at the meeting, but at his own mine, where I saw him shortly after the meeting. As to the amount of water of South Frances the writer shows equal ignorance. His predictions and prophecy are alike based on an absence of any correct information. The 75 in. engine on Marriot's shaft is sufficient for all purposes, provided the water was under the bob or the level straight through which the flat-rods work, instead of numerous angle and fend-off bobs, involving an amount of friction and loss of power equal to the direct force required to lift the water. Capt. James recognised their position and necessities, and repelled with contempt the ignorant dictation of pseudo-critics. The course adopted by Capt. James to push the 185 ft. from Pascoe's to Marriot's shaft, rise and sink through the intervening distance, and thus bring back the water directly under the engine. The boring machine, doubtless more from want of system, experience, or energy, has not expedited this work as Capt. James had reason to expect, or he would now have been rising against Marriot's shaft and speedily put the mine in a first-class position.

The water arising from the deeper development of South Frances is insignificant, but their difficulties have arisen through the small-

ness of their pitwork below the 155, which has recently been changed for larger, and the difficulty comparatively ignored. Any novice may understand that if the upper part of a mine requiring 12 in. or 14 in. pitwork should not be kept clear, but the water allowed to fall to the bottom, a 7 in. or 8 in. lift must take a considerable time to clear, to the prejudice of the deeper development.

There is an adjoining mine to the west, where it took twelve months to sink 2 ft. some years ago, yet now, with 50 per cent. more water, they sink 8 to 10 ft. a month. What do we hear, or did we hear, of reforms required there? South Frances is a splendid property; and to the shareholders of West Basset I would say secure an equivalent interest in your neighbour as early as possible; disregard the volunteered advice, whose only object can bode no good to either one mine or the other. The committee to be appointed at the coming meeting will doubtless soon solve the question—how to put South Frances in that enviable position its riches justify.

Oct. 26.

H. WADDINGTON.

WEST BASSET AND SOUTH FRANCES.

SIR.—With respect to the much-quoted letter written by me and mentioned by Mr. Daubuz at the West Basset meeting, permit me to say it is in my opinion most unfair and unjust to me, and calculated to mislead public opinion. The letter in question should have been read as it was written, or not at all; the part that was read did not convey the object of the writer, but quite the reverse. The part read seems to implore the West Basset committee for help; but if the former part of the letter was read it would show the public that West Basset agents had neglected their duty, and allowed their water to run down upon us when they might and ought to have kept it up; hence that part of my letter which was read. We have difficulties enough to contend with without drawing the water you ought to keep up. But this part of the letter did not suit the Chairman's purpose; no doubt he wanted to show that an appeal was made to his generous heart for help, where none can ever be rendered, and where none will ever be wanted. I have no doubt that the contemplated amalgamation was conceived with a view of putting up West Basset shares to enable some one or more to realise their interest at a much higher value, and hundreds of shares have been bought and sold in both mines with this object in view. It is stated that West Basset has good shafts, and these can be made available for South Frances, but the writer is unable to see this. We know Pascoe's shaft is a bad one, but quite as good as any shaft West Basset can bring to our aid.

Grenville shaft is the only one that could be sunk deep enough to render us any assistance whatever, and from the bottom of this shaft to the bottom of South Frances is about 200 fms.; it would, therefore, take a long time to bring down this shaft, and at great expense, to our assistance. And what sort of shaft would it be then. I will tell you the first 100 fms. would be perpendicular, the next 30 fms. would be on the dip of the copper lode north. The next 200 fms. would be on the line of the flat lode south at an angle of about 32° from the horizontal line; in fact, it would be just such a shaft as to make a miner sick to think of it, and scarcely fit to pull a dead dog through. This is one of the great advantages the amalgamators in tended to offer us as a bait to take upon our shoulders what we are unable to carry; and instead of lessening our troubles it would increase them tenfold. Again, South Frances has the flat-rod, with all the other south lodes falling in upon it, for about 800 fathoms in length, unbottoming West Basset at about 160 perpendicular fathoms from surface for all the distance where the two sets join. What advantage, then, can amalgamation be to South Frances? None whatever. The latter mine has an everlasting bottom, with a good future before it, whilst the other mine can come so far, and no further. Why entertain the subject of amalgamation at all, seeing that the market value of the two mines would have to be taken into consideration, and the adventurers in South Frances would be asked to pay for a mine they do not want, and very probably, by waiting a short time, they might, if they so desired, buy it at one-half its present value? I confess, Mr. Editor, the more I consider the matter the more thoroughly I am convinced that the amalgamation scheme can only benefit one party, and it is our policy to keep out of it.

A. T. JAMES.

WEST BASSET AND SOUTH FRANCES AMALGAMATION.

SIR.—I was not a little astonished to hear of this proposal the day previous to West Basset meeting and to see it confirmed by the discussion on it the following day. At first I thought it a market move of the jobbers, and probably it is not much other now, although some "great men" who are taking a leading part in it, including certain tin smelters, who know how to get rid of their mining stock marvellously quick when drooping prices are "settling" on. I look on it with greater suspicion on this

tons of copper ores monthly, besides blonde, and that they can now calculate on starting with samplings equal to 22,000*l.* per annum. Verily this is something like a venture, and who shall say that this El Dorado shall not equal in magnitude and riches even the King, the Queen, and the Virtuous Lady Mines, which rolled into one?

Oct. 24.

AN OLD OBSERVER.

WEST CHIVERTON MINE.

SIR.—As a shareholder in West Chiverton, I thank you for the report of the meeting contained in your last, and I beg that you will permit me to call the attention of my brother shareholders, through your columns, to a very important fact mentioned at the meeting, but not mentioned in the report issued to the shareholders by the secretary. In answer to Mr. H. W. Sharp's pertinent question, the secretary stated that about 550*l.* had been borrowed "for current expenses" beyond and above the limit, 2000*l.* at which the shareholders had at a previous meeting fixed the borrowing powers of the managers of the mine. Of this some 350*l.* had been paid; but the limit remains exceeded by 200*l.* Surely, Sir, this is a striking fact. The borrowing powers granted by the shareholders are immensely exceeded, and the secretary does not seem to think any apology necessary. I trust that the managing committee will think it absolutely necessary to permit no such conduct in future.

London, Oct. 27.

A WEST CHIVERTON ADVENTURER.

WEST CHIVERTON MINE.

SIR.—Looking through the summary of market intelligence in last Saturday's Journal I was rather alarmed by the announcement that on five weeks (?) working loss of 1745*l.* had been made at West Chiverton. I soon satisfied myself, however, by a reference to my statement of accounts that the "weeks" was a printer's error, and should have been "months" instead. Considering the amount of dead work, in the shape of drawing up the shafts, collecting loose and surplus stock for sales, and the cost of holding the sales, and looking at the result of the work recently prosecuted in the 80 fm. and 70 fm. levels, it does not appear to me a very bad five months' working, although an adverse balance is shown. From my experience of Capt. Southey he is not a man of a very sanguine temperament, and has a tendency to look at the affairs he has in hand from a pessimist point of view rather than otherwise; yet throughout his report there is a current of successful anticipations which gives me promise, at any rate, of something at the end which will recompense me for my outlay in the shape of calls, and cause me to rejoice that I have kept true to the old mine through its shadows as well as its sunshine. I shall pay my calls without a murmur, as I have no doubt the greater part of my fellow-shareholders will, this being, I believe, the last call we shall be required to meet, at any rate for many years to come.

It is a peculiarity of mining that when a rich discovery is actually made (though in the case of Limited Companies it is not always requisite for the discovery to be an ascertained fact) shares in that particular concern rush up to quite an abnormal figure, afterwards to relapse according to the merits of the discovery made. But, as a rule, whatever the antecedents of a mine may be, if it happens to fall into debt—even though the debt has been incurred in the development and improvement of the mine—it becomes an obscurity until the day arrives when all its quiet and patient working culminates in a grand discovery. Yet in reality the discovery is no discovery at all. We are told by Capt. Southey of a caunter lode running through West Chiverton which he is actually acquainted with from an inspection of it in the mine running into West Chiverton, and to this caunter lode he tells us he is driving at the same time he is developing the lode in the 80 fm. level east. When the junction he speaks of, however, is attained the attention of the Stock Exchange will be immediately directed to it, and we, the shareholders, will be congratulated upon our property. In the same way, at an earlier date, we shall have another discovery announced in the 70 fm. level. This latter, I should calculate, might happen any day, and yet until it does actually transpire the public will remain in happy ignorance. Had the concern been on the limited liability principle matters would have been different. Shareholders would have been kept well posted on all the appearances at every foot pretty nearly, and kept on the *qui vive*, so that when the discovery was positively made the shares would be already at as high a figure as the discovery would merit, but in consequence of the restless activity of those interested they would be run up to a much higher sum.—Oct. 27.

A SHAREHOLDER.

OLD SHEPHERD'S MINE, NEWLYN EAST, CORNWALL.

SIR.—When a lad I was employed on the floors at Shepherd's Mine to help to dress lead. I was at that time too young to go underground to work, but I well remember the rich lead being drawn from underground, coming up in large rocks (hundreds of weight in a rock); I also remember the smelting works on the mine, and also the foremen in charge of that department; they were three brothers, and their names were Henry, Joel, and Moses Bawden, and these men being old friends of my father, they have many times conducted me through the works and pointed out the processes to me, and though so many years has elapsed these things are quite fresh in my memory at this moment. I remember it used to be a great day at the mine when these Messrs. Bawden took the great cake of silver (as we people used to call it) out of the furnace, as before stated.

Now, I wish to say that I have worked with many good miners in after years that had laboured in Old Shepherd's Mine, and every one of these men have repeatedly told me that Shepherd's was a rich mine when it ceased working, and I have every confidence in their statements, and now let me tell you what the old captain, John Champion, has told me about this mine. He and myself have many times talked about Shepherd's Mine during the working of East Wheal Rose, and he always said there is a splendid course of ore in the bottom of the mine, and he has told me that there is a high stope of nearly solid lead in the bottom of the bottom level between the western and the eastern part of the mine, and this all the size of the level, which is, he said, a large level. He also often expressed regret that a settlement could not be arranged between the lords so that the mine might be put to work. Now, sir, he being an old agent of the mine, and to make such statements as this, and also hearing all the best miners' statements in the same way which verified Capt. Champion's statement, and seeing rich lead drawn to surface myself, and no doubt some old reports from undeniably sources are in hands of the gentlemen who intend re-opening the mine, I say, with such evidences before them, I think they are quite safe in putting their capital to resuscitate the Old Shepherd's Mine, and I wish them very success in their undertaking.

JOHN PHILLIPS.

Oola Hills Lead Mines, County Limerick, Ireland.

P.S.—There are other good things in the neighbourhood of Shepherd's and East Wheal Rose worthy of notice.

THE CAMBORNE DISTRICT, AND ITS MINES.

SIR.—Most persons connected with mining are always pleased to hear of any mines being started, and I think more especially when it is to be in their own neighbourhood. It is rumoured here that a very influential company are about to re-work Camborne Vean. This mine is situated close to the Stray Park Mine, which is the western part of the well-known Dolcoath Mine; it is on the same run of lodes, and the same strata extend through the lot, which is for a certain depth clay-slate or killas. The killas here, as in Dolcoath and most other productive mines, is impregnated with quartz, which seems to be an essential part of the killas, in which all the rich lodes of the district are found. Camborne Vean, like its neighbouring mines, was worked some years ago for copper ore in this strata, but I cannot exactly say if the shaft was sunk through this killas and into the granite, but about and under the junction of this quartz-bearing killas and granite has been found the rich tin lodes of Dolcoath and other productive mines in the western part of the county. There are mines in the vicinity not working worthy of notice; I think I might venture to mention two of them—they are West Stray Park and Trevoil Mines. West Stray Park is about 200 fms. west of the Camborne Vean Mines; the same masterly lodes pass through this property, also the killas or upper strata con-

tain a large portion of quartz. This mine was worked in the clay-slate for copper, and yielded large quantities of that mineral. It is strongly believed here if more fully developed (shaft sunk into the granite, &c.) it would prove to be a profitable concern for tin ores. Trevoil Mine is south-west of the mines above referred to, and about two miles distant from the town of Camborne, is not on the same run of lodes as Dolcoath, Camborne Vean, and West Stray Park Mines, but is believed to be the upper part of the great flat lode, which have been so productive for tin ores under the bed of killas in West Basset, South Frances, and South Condurrow Mines. This mine was some years since worked for copper ores, but owing to inefficient machinery and disagreement of the agents was abandoned, having sold ores up to the time it stopped to the amount of 200*l.* per month. The killas in this mine is also disseminated with quartz and a little felspar.

In conclusion, I beg to say that in most of the mines of the district that have been profitable for copper and other minerals the killas has been found to contain large quantities of quartz. The above-named mines having the same upper strata or bed which contains the mineral-bearing qualities as the mine mentioned, which have from time to time given so much profit to the adventurers, I see no reason why Camborne Vean, West Stray Park, and Trevoil Mines should not prove profitable for tin ores if developed under this bed of killas and into the granite, which I should suppose, from the adjoining mines, would be found at a moderate depth in the last two named mines especially.—Camborne, Oct. 27.

C. T. R.

THE TAVISTOCK DISTRICT.

SIR.—I see a correspondent states that Mr. Peter Watson and Mr. Moses Bawden probably know more about geological and mineralogical features of this district than any men living. Now, both Messrs. Josiah and Jehu Hitchins are still alive, and what do they say to this? The former was the original discoverer of the rich lode at Devon Great Consols, and I should say that no man living knows so much of the district as these two brothers do, and there are others who are well acquainted with most of the mines there. Messrs. John and Richard Taylor, and Mr. Warington Smyth also could tell a good deal.

VERAX.

PARYS COPPER CORPORATION.

SIR.—Every now and again we are treated in the Journal—which I may say in passing I have taken in nearly 20 years—with very strong criticisms from Messrs. Watson and others upon the meagre accounts and unsatisfactory meetings of mines managed in the country; but what are we to say to the notice of the forthcoming meeting of this company (managed in London), which simply gives a report signed by the Chairman, but without any accounts, to enable the shareholders to form an independent judgment? No prices, no valuation of ends, "no nothing." Having stuck to this company and its predecessor some nine years and never sold a share, but on the contrary I have added to my holding, I cannot be accused of writing for market purposes when I express my disappointment at the non-publication of the accounts, and the generally vague nature of the report, and at the delay in the employment of rock-boring machinery. It is some six weeks since the call was made, and we were led to suppose that it to be used in getting this machinery to work, and now its employment is postponed until, I suppose, the cash has been expended in slowly opening on this and that lode, and then we shall be asked to take up the unallotted shares to provide the funds for the machinery. I do not like finding fault with the executive, who as a rule are probably as largely interested in the concern as any shareholder, but there is a time to speak as well as a time to keep silence, and when I receive a report without accounts, and a notice convening a meeting for a Friday, so that we can only look for a brief notice in the Journal instead of a full statement of the utterances of the officials, I think I may venture to conclude that this is a time to speak and protest.

Unfortunately I shall not be able to attend the meeting, but I hope some London shareholder will see this letter in your paper, and be present and require exact and clear explanation why the accounts are withheld, and why the secretary's notice, dated the 26th inst., that the transfer books would be closed on the 27th was not in the hands of shareholders until the day afterwards—the 28th. At least such was my case, although we have three mails day from London. In any case it would have served no practical purpose as a warning notice if I had received it on the 27th, as that is included in the "close days."

AN OUTSIDE SHAREHOLDER.

[For remainder of Original Correspondence see this day's Journal.]

FOREIGN MINING AND METALLURGY.

In the Belgian iron trade there is a continued want of new business, and some uneasiness is beginning to be felt as regards the future. Quotations have not experienced much change at present. Pig continues to range between 2*l.* 2*s.* and 2*l.* 8*s.* per ton. English casting pig delivered at Antwerp has made 2*l.* 8*s.* per ton, while refining has brought 2*l.* 4*s.* 8*d.* per ton. Plates have experienced rather a downward movement. The Esperance Company, of Liège, has issued a tariff based on a reduction of 4*s.* per ton. The present quotation for ordinary plates is 6*l.* 12*s.* to 6*l.* 16*s.* per ton. A contract for 2200 tons of steel rails has just been let in Belgium; the order was secured by the John Cockerill Company, at 6*l.* 8*s.* per ton. For some old rails which had to be disposed of in connection with this affair an English firm offered 3*l.* 3*s.* per ton.

The French iron trade has not improved, and prices have not exhibited any great amount of tone or strength. Merchants' iron is quoted in Paris at 7*l.* 4*s.* per ton, but some concessions would be made probably from this price in order effect sales. It appears, however, that the situation has somewhat improved in the Nord, and that a revival is even anticipated, all the works being pretty well occupied. The situation has not improved in Germany. The demand for iron appears to be generally weak upon the German markets, and quotations have been sustained with some difficulty. Enquiries have come to hand from several quarters, but they have not amounted to anything, the prices offered being so low as to leave scarcely any margin of profit to manufacturers. Krupp, of Essen, has received an order from the United States, for 25,000 tons of rails. The state of the Austrian iron trade is far from favourable, and a fresh fall in prices is being talked of.

The Belgian coal trade continues to present a satisfactory aspect. The demand becomes more decided from day to day, and the public, profiting from the lesson received last winter, is endeavouring to protect itself from the advance in prices which would be tolerably certain to follow a little persistent cold. The weather appears to have already become the ally of Belgian colliery proprietors, and the damp and cold of the last few days has not a little tended to stimulate orders. In all the Belgian coal districts coal for domestic purposes continues in strong demand. In the Liège basin the demand for industrial descriptions of coal is, however, less considerable. On the other hand, in the Mons basin industrial coal maintains itself pretty well. Stocks have for the rest almost disappeared, and deliveries are generally active, especially to France. Upon the whole the situation is regarded as decidedly encouraging. At Paris the coal trade is also active. At present there has been no accumulation of stocks, but the coalyards have easily provided for the requirements of consumption without any variation in prices. Household coal has made 2*l.* to 2*l.* 4*s.* per ton delivered. The Anzin Company has established a depot at Paris, and offers its household coal upon the Paris market at a trifle under 2*l.* per ton delivered to consumers. The German and Austrian coal trades have somewhat improved.

A Japanese native paper says that it has been a very general idea that Japanese iron was of so inferior a quality that the raw material could only be worked up at a loss; the Public Works Department consequently used to employ imported iron. Recently, however, the iron from the Kamaishi Mines, in the prefecture of Iwate, has been found to be of so good a quality that experiments are now being made in the workshops of the Department with a view of its ultimate adoption.

M. Trasenster, Professor at the University of Liège, has contributed to the Revue des Mines an article on "Dephosphorisation," in which

he deals with the cost price of Thomas steel in Belgium, as compared with that under the Bessemer process. He proves the difficulty of making pig by the new system at less than 70*fr.*, whilst introducing the Gilchrist process will command itself for general adoption—first in the Eastern Departments of France: next in Westphalia, Sheffield, and Belgium; and finally in the Cleveland districts. The advantages are about co-equal in respect to Westphalia, Belgium, and Sheffield, set down at 20*fr.*, as against 40*fr.* in the Eastern Departments of France. He anticipates that the success of the new process will lead to a depreciation in hematite iron.

REPORT FROM CORNWALL.

Oct. 28.—Probably there never was a time when the fluctuations of metals on the London market—of course we refer to tin in particular—were so closely watched upon the local share market that they are at present. Quite apart from the ordinary business there seems to be what may develop into a large amount of small speculation going on—the handwork of small capitalists who are anxious to turn their capital over as frequently as they can, and make as much of any margin of profit that may exist as possible. This is as things are, does little harm. It is quite certain, however, it does no good. The market is quite sensitive enough without such operations as these. It would be a bright day for Cornish mining if the speculative element could be confined within something like model proportions, and the operations of the legitimate investor take its place. But it is idle to wish for what we are so unlikely to get and we must make the best of what we have.

The opinion that the amalgamation between South Frances and West Basset will be arrived at is certainly gaining ground, though it is by no means easy to estimate the value of the many different reports current. Since we last wrote prices have fallen in both these mines, though the drop has been more serious in the former, and the difference in selling value is, therefore, more than the 50 per cent. or so noted last week. Are we wrong in ascribing the fall in South Frances partly to the unintended effect of the expressed opinion of Capt. A. James that with the amalgamation he should "consider the prospective value of South Frances considerably lessened, if not ruined?" It seems very probable that, at any rate, has helped on the fall, and has thus played into the hands of the amalgamators by enabling them to acquire South Frances shares at a lower figure. We take a different view of the proposed amalgamation. We believe it will benefit the adventurers in both concerns. It is not unlikely that the recent large dealings in South Frances have given the amalgamators a preponderating influence in that mine, and Capt. James is said to have resigned—at any rate, his resignation will be tendered to the shareholders. This, to our thinking, is more likely to be regretted, but nothing else could be expected from the determined stand he has made against the project. If the amalgamation were not to be carried out now, the state of things between the two mines would be worse than if it had never been proposed.

The Royal Geological Society of Cornwall annual meeting is to be held at Penzance, on Nov. 5, when several valuable papers may be anticipated.

The Tavistock Rural Sanitary Authority had a discussion this week on the occurrence of alleged arsenical poisoning in connection with Messrs. Lanyon's Arsenic Works at Mary Tavy. It seems to us that the objects to the works proved a great deal too much. If any such deposit as they spoke of had formed on grass, or on the roof of the house of the rector—whose family were stated to have been affected by it—instead of inconvenience and illness there would have been wholesale death. Of course, it is convenient and natural when mysterious illnesses crop up, either in families or fields, to put them all down to the nearest possible cause; but it does not seem as if anybody would have thought of arsenic in this case if Wheal Friendship had not been in the neighbourhood, and no trace of arsenic has been found anywhere in the supposed affected localities. More than this, there is the testimony of the most experienced analyst in the West of England, Dr. Oxland, of Capt. Isaac Richards, and Mr. Moses Bawden, that the works at Wheal Friendship could not have caused the injury. We all know there are plenty of things that may affect cattle, and Dr. Oxland, as to the rectory, suggests some internal cause. All manufactures ought to be in proper order, and Messrs. Lanyon are prepared to remedy any defect in theirs; but what the Local Government Board, whose intervention is threatened, are to do in the matter it is difficult to say. The case seems to be a fair sample, on the present evidence, of the way in which mining and allied operations are so often grievously harassed, for it is very clear that some members of this rural sanitary authority did not know what they were talking about.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Oct. 28.—The firmness noticeable last week in hematites developed at the meetings of the trade yesterday and to-day into a positive advance; on some brands 2*s.* 6*d.* advanced was secured. Small foundry hematites of the leading South Wales quality could be bought at nothing under 5*s.* above the figure demanded for few kinds. Indeed makers asked 7*s.* 6*d.* advance. Reliable native pig iron pigs were 2*l.* 15*s.* Makers of boiler plates sought orders difficult, but without much success, even at 9*s.* per ton. Galvanizing sheets were 7*l.* 10*s.* to 7*l.* 15*s.*, and merchant singles 7*l.* 5*s.* Nail sheet of 13 w.g. were 6*l.* 5*s.* The Sheetmakers' Association met again in private this afternoon in Birmingham, when some dissatisfaction was openly displayed at the proposal to depart from the full "extra" which had hitherto nominally ruled for doublers and lattens. The bar trade is without change. Coal masters were demanding better prices for household fuel, encouraged by the improved demand.

Messrs. Robert Allen and Robert Ben North, trading as Allen and North, iron merchants and factors, Wolverhampton, have just filed their petition. The liabilities are estimated at 6000*l.*, and the assets at 5000*l.* Mr. David North, father of the junior partner, has been out of the firm for some time.

At the Darlaston Steel and Iron Company's annual meeting a committee was appointed to consider the advisability of selling the iron-making portion of the property. It was suggested that the iron works should be let for a series of years at a minimum annual rent of 200*l.*, and that after a dividend of 5 per cent. had been paid to the lessees out of the profits the remaining profit, which was estimated at 800*l.* a year, should come to the present company. The annual maximum rent would, therefore, be 1000*l.*

The Walsall Wood Colliery Company's annual report states that since the last meeting the No. 1 pit has been fitted up with cages, &c., and is now capable of drawing 2500 tons per week. The present output is only half that quantity. A self-acting endless rope has been started, which brings the deep coal to the bottom of the shaft at a very small cost. The shallow coal is also drawn here, and a similar endless rope is contemplated for conveying it.

The East Cannock Colliery has just been purchased jointly by Mr. H. D. Pochin, of Bodwont Hall, Conway, and Mr. H. W. Gibson, of Burton House, Stafford, on behalf of a few capitalists who have formed themselves into a limited liability company. The whole of the 50,000*l.* capital has been privately subscribed.

The first sod of a new railway, with which it is proposed to connect the Billingsley Collieries and the Severn Valley Railway, and eventually the extensive and valuable coalfields of the Clew Hills and that railway, was turned on Tuesday by Col. Stallard, at the junction about 1½ miles below Arley station. The Billingsley pits, consisting of two shafts, were sunk some time ago, for the purpose of demonstrating the accuracy of the scientific theory of Prof. Molyneux, who, from an examination of the Forest of Wyre, declared that if tapped it would be found that a splendid seam of coal existed all over the Forest, which measures nearly 18 miles in length and 7 miles in width. Here and there, all over the Forest, coal is found exposed on the surface, and the experiment has proved the soundness of the geological theory. A fine seam of coal has been cut through, measuring altogether 17 ft. thick, and it is believed that this seam extends all

over the Forest, and even runs on as far as Bayton. In addition to this a valuable ironstone bed 7 ft. thick and a fire-clay bed 3 ft. thick have also been discovered, and analysis has proved that the ironstone is equal to any found either in the South Staffordshire or South Wales workings, while it is declared that the clay is equal to the celebrated tourbridge clay. With the view of working this vast mineral field, a company has recently been formed at Worcester, its share capital being fixed at £100,000, in 5*l.* shares, and they have secured the right to work over 1200 acres of the Forest. Most of the land belongs to the Duke of Cleveland, the other portions forming part of the Kinlet estate, belonging to Mr. Childe. The collieries are under the care of Mr. Dimbleby, of Malvern, and the chief engineer is Mr. T. D. Roberts, of Newport. The proposed mineral railway will be a little over three miles in length, and will be constructed by Messrs. Drewitt and Pickering of Stoke-on-Trent. The contract for the work is a little over 10,000*l.* After turning the sod at the junction, the party walked to the collieries, where luncheon was provided, and many of the gentlemen descended one of the shafts, and were much interested in the inspection of the workings. After luncheon, "Success to the undertaking" was proposed by Mr. Birbeck (of Worcester) and responded to by Mr. Dimbleby. The health of the contractors was also toasted, to which Mr. Drewitt responded.

TRADE OF THE TYNE AND WEAR.

Oct. 27.—The general trade of the district continues steady, with a slight improvement; this is not rapid, but is perceptible in most of the staple trades of the district. Steam coal continues fair, but the supply of tonnage is still rather defective; however, most of the gas works, both first and second class, are fairly employed. The gas works are fully employed, and this is expected to continue during the winter. The house coal trade has improved considerably, and an advance of 1*s.* per ton has been established this month. There is also a fair demand for manufacturing coal for home consumption. The chemical trade has again become very dull, and the price of some products have fallen to a price never before touched. The reason is, no doubt, to be found in the enormous production, and the continued increase in that production on the least revival of trade or increase in demand, and consequent increase in prices. This trade is an exception, as all the other staples of the district are fairly prosperous and improving. The demand for coke continues good, and most of the coking coal works are fully employed. The Blaydon Main Collieries coke ovens, fire-brick works, &c., are shortly to be sold by auction in Newcastle. These works are situated on the south bank of the Tyne, near Blaydon, about 4 miles west of Newcastle. The Brockwell seam, a first-class coking coal, and other seams have been worked here many years, and first-class coke is produced from the Brockwell coal. Fire-clay of excellent quality is also produced, and from this clay bricks and other fire-clay goods have been manufactured for a long period. The works were founded and developed by the late Mr. G. H. Ramsay, a county magistrate of long standing; he was one of the oldest merchants and manufacturers on Tyneside, and died recently at an advanced age. Ramsay's coke and fire-bricks were well known, and occupied a high position for a long period in the home and foreign markets. There is also a seam of Cannell coal on the estate, which has been worked to some extent; this remarkable deposit is, we believe, about 18 in. in thickness, and it contains a large percentage of gas. The coals worked from it are sold at a high price.

On Saturday a special meeting of the directors of the Blyth Harbour and Dock Company was held for the purpose of advancing the scheme agreed upon between them and the North-Eastern Railway Directors. Plans have been prepared, and it is expected that in a short time operations will be commenced. New loading spouts are to be erected on the south side of the river, and a direct line of railway made from the collieries north of the Wansbeck to the port. It is also intended to increase the depth of water in the harbour by about 15 ft. When these important measures are carried out the trade and commerce of the port will be largely increased, and, of course, the collieries north of the Wansbeck will be placed in a much better position than at present.

The Harton Henry Coal Company (Limited) annual meeting has been held at the company's office, Darlington, Mr. John Marley in the chair. The accounts and reports for the year ended June 30 last were unanimously adopted, and show that the finances of the concern are in a sound condition. The sinking of the pits of the company was commenced in 1873, and five years were spent in winning the coal and opening out the colliery. The colliery is now making a considerably increased yield, and arrangements are in progress for further extending it. It appears that in addition to the household, steam, gas, and manufacturing coal originally contemplated to be worked, the company have during the past year discovered that they could make a good blast-furnace coke, for which the Cleveland district affords a ready market. As a commencement of this new source of revenue they have built 30 patent ovens. The geographical position of the colliery, which comprises a freehold and mineral estate of about 800 acres, is excellent; but by the recently opened branch of the North-Eastern Railway it is now brought to within 16 miles of Cleveland, 8 miles of East Hartlepool, and 10 miles of West Hartlepool. At the last-named ports increased facilities for shipping, through the enlargement of the docks by the North-Eastern Railway Company, have been recently secured, thereby greatly improving the prospects of the shareholders. Indeed, it is estimated that for the current year, even at the present low prices of coal and coke, a fair interest will be returned on the capital.

THE SEAHAM COLLIERY EXPLOSION.—The inquest on the bodies of the men killed by this explosion was adjourned on Thursday last until Dec. 13. The evidence of Mr. Stratton was taken in part and also that of several of the overseers and sub-agents. The evidence showed that the explosion occurred at or near a station known as the Polka way-ends, and the fire extended from this point outwards to the shaft and to a considerable distance inwards towards the internal workings of this extensive and complicated mine. When the inquest is resumed Mr. Stratton will be again examined, and also several mining engineers who have assisted in the exploration and opening of the workings; and in the meantime an examination of the coal dust found in the mine will be made by Mr. Willis and Mr. Bell, inspectors, assisted by a chemist, and samples of the dust will be brought out for examination and experiments. As to the origin of the gas which was ignited and the means by which it was ignited, no particular evidence has yet been given by any of the witnesses; but when the inquest is resumed no doubt this important question will be fully entered into. The greater part of the workings in the pit are now in good order, and men have been engaged in drawing coal since Thursday last. All the dead ponies, except those in the Maudlin Seam, have now been drawn to bank.

The iron trade continues to improve. The demand for pig-iron steadily increases; last week this iron was exported at the rate of 4000 tons per day—this week it is expected that there will be an increase in this quantity. There has been an advance of 1*s.* 6*d.* to 9*s.* per ton in this iron during the fortnight. The manufactured iron trade is steady. There is a large demand for ship-plates, which are now 6*t.* 12*s.* 6*d.* Angles, 5*t.* 12*s.*; boiler-plates, 7*t.* 10*s.* The iron-building trade on these rivers is in a very active state. The amount of work in hand at the large yards is enormous; at Mitchell's, Leslie's, Palmer's, &c., a very large number of vessels are on hand—at Palmer's about 20 vessels of 2000 tons and upwards are in hand. In consequence marine engine builders, boiler makers, and others are getting full of work.

MANUFACTURE OF STEEL FROM CLEVELAND IRON.—The successful manufacture of steel from this iron is now confirmed by further experiments on a large scale. Steel is now turned out by the large converters, and the quality of the product is stated to be all that can be desired. Common Cleveland iron has been used with perfect success, the steel so produced having been rolled into rails, the mechanical and chemical tests of which are fully satisfactory. The use of this iron in the 15-ton converters was commenced on Monday week, and has been regularly carried on since in a manner which shows that the difficulties met with have been overcome, and the results quite satisfactory. Both hard and soft steel is produced with

equal facility. At Middlesborough on Tuesday there was a good attendance, but the market was more quiet than last week.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Oct. 27.—A sure sign of an improvement in the coal trade is the stiffening of prices, and this not only on account of the approach of winter, but also because of the general improvement in trade. This latter cause creates a demand for the inferior qualities of coal. The white ash coals of the district being preferred for lime burning, and the rough and through coals for steam and shipping purposes. The limestone-quarrying trade has experienced a decided improvement this year. Although farmers will not by a long way be recouped by this year's produce for the disastrous results of last year, their confidence is partly restored by the better issues of this year's farming. One result of this is a greatly increased demand for lime. Then the demand for limestone for fluxing and chemical purposes, the raising of which is a great trade in North-West Shropshire and the contiguous parts of Wales, has been greater this year than for several years past. There is a greater activity also in the ironworks of the district, although I regret to have to report the closing again of the Pontcysyllte works. From ironworks to iron ore is but a step, and I am glad to hear of a discovery of haematite ore at the foot of the limestone cliffs north of Llangollen. I hope the ore may be of sufficient strength and occur in sufficient quantity to justify the raising of it. In the firebrick trade, and more especially in the common brick trade, prices continue very low, in the latter branch barely remunerative. In sanitary ware manufactures the demand, both first and second class, are fairly employed. The gas works are fully employed, and this is expected to continue during the winter. The house coal trade has improved considerably, and an advance of 1*s.* per ton has been established this month. There is also a fair demand for manufacturing coal for home consumption. The chemical trade has again become very dull, and the price of some products have fallen to a price never before touched. The reason is, no doubt, to be found in the enormous production, and the continued increase in that production on the least revival of trade or increase in demand, and consequent increase in prices. This trade is an exception, as all the other staples of the district are fairly prosperous and improving. The demand for coke continues good, and most of the coking coal works are fully employed. The Blaydon Main Collieries coke ovens, fire-brick works, &c., are shortly to be sold by auction in Newcastle. These works are situated on the south bank of the Tyne, near Blaydon, about 4 miles west of Newcastle. The Brockwell seam, a first-class coking coal, and other seams have been worked here many years, and first-class coke is produced from the Brockwell coal. Fire-clay of excellent quality is also produced, and from this clay bricks and other fire-clay goods have been manufactured for a long period. The works were founded and developed by the late Mr. G. H. Ramsay, a county magistrate of long standing; he was one of the oldest merchants and manufacturers on Tyneside, and died recently at an advanced age. Ramsay's coke and fire-bricks were well known, and occupied a high position for a long period in the home and foreign markets. There is also a seam of Cannell coal on the estate, which has been worked to some extent; this remarkable deposit is, we believe, about 18 in. in thickness, and it contains a large percentage of gas. The coals worked from it are sold at a high price.

In the Shropshire lead mining district the South Roman Gravels mining property has been taken afresh—this time by Capt. Morris Ridge—with a view to its more effective development and working. The great Roman vein passes through the heart of the sett, and numerous veins from the surrounding mines—Ladywell, Grit, Pennerley, and Bog—converge into it. No one can travel through this mining district, and meet the loaded wagons of ore coming down to Minsterley from the Roman Gravels, Tankerville, and other mines, without regretting that the Snailbeach District Railway ends where it does. A movement was reported for its extension. With sufficient co-operation from the neighbouring mineowners and the district generally I daresay this extension would be possible. In that case also it is probable some modification might be made in the rates charged, which are now in the case of some commodities said to be so high as to be prohibitory.

A comparison of the mineral returns from this mining district for the years 1878 and 1879 shows the satisfactory results of four more mines selling ore, of 158 tons more ore being raised; and, most satisfactory of all, the fact that while 6158 tons of ore sold in 1878 realised 40,697*l.*, 6297 tons sold last year fetched 46,269*l.*, so that a considerable higher average price was obtained for the ore last year than in the year before; nearly one-third more.

Meetings of Public Companies.

WEST PRUSSIAN MINING COMPANY.

The ordinary general meeting of shareholders was held at the offices of the company, Westminster Chambers, Victoria-street, on Wednesday.

Mr. JAMES R. STEWART, jun., in the chair.

Mr. EMILE GÄRCKE (the secretary) read the notice convening the meeting, and the minutes of the preceding one, which were confirmed. The report and accounts were taken as read.

The CHAIRMAN said, with regard to the report and balance-sheet, he had very little to add to what had already been circulated in print among the shareholders and the report made by their manager, Mr. Wyndham H. Wynne. He thought that, taking into consideration the circumstances of the year, they had reason to be satisfied with the state of their finances, and also with regard to the working of the mine, and this state of things was mainly due to the energy shown by their manager, whom they were very fortunate in having. Since the preceding meeting the cost of production per ton had been diminished, and they had succeeded in obtaining somewhat better contracts than in the previous year. The shareholders would have seen in the report a reference to the purchase of the Aurora Mine by the directors. At the time of making the purchase the price of lead was much higher than now—it was between 18*s.* and 19*s.* per ton—and the state of their finances led them to suppose they could add to their mines very advantageously by buying the Aurora Mine, which appeared to be a valuable one, and which had been favourably reported upon by their manager. It was also thought that the purchase would not interfere with the payment of the usual quarterly dividend; but, unfortunately, their anticipations had not been fully verified, and in consequence of a considerable influx of water at the Heidberg Mine they had had to defer paying the dividend for the present, but, unless something unforeseen occurred, he hoped that they would resume the payments next quarter. They had found it necessary to transfer from the profit and loss account a considerable sum—300*l.*—in order to meet expenditure, which should really be paid out of capital if that had not already been spent. It will be remembered that they carried forward last year 2034*l.*, and the balance of this year's profit amounted to 11,450*l.*, making together 13,485*l.* Of this sum 2395*l.* had been paid in dividends to the preference and ordinary shareholders, and they had carried 300*l.* to the reserve fund, leaving a balance of 1890*l.* to be carried forward to the next account. He would be very happy to reply to any questions or afford any additional information in his power. The Chairman then moved

"That the report of the directors and the balance-sheet and profit and loss account for the 12 months ending June 30, 1880, now presented to the shareholders, be received and adopted."

Colonel CHARLES WYNNE, in seconding the motion, said that since the last meeting of shareholders he had been out to the mines and inspected them very minutely with their manager, who begged him to tell the shareholders how glad he would be to receive them and show them everything that was going on at the mines. He (Col. Wynne) was quite sure that the shareholders who had not been there would be astonished at the magnitude of the works which were being carried on, and he assured them that the mines were very well worth a visit from any of the shareholders who could make it convenient to go and see them.

Admiral STODDART asked whether the latest reports from the mines contained any important information?—The CHAIRMAN replied that in his latest report the manager stated that there had been a change in the Aurora Mine, and that he hoped to meet the lode there very soon. There seemed to be some signs that they were approaching it, and it was expected that the main lode would be met with by the end of the present month. Lead and blende had been met with in the gallery.

Admiral STODDART asked how far the Aurora Mine was from the other properties of the company?—Col. WYNNE, in reply, said it was about 12 miles from the Zeithen Mine; and, in reply to a further question, said the property was situated close to a railway.

Admiral STODDART: Do we have to bring the ore from Aurora to the other mines to be treated and sold?—The CHAIRMAN: No, there are dressing works there, which may require some repairing, and we can sell the ore there.

Admiral STODDART: Does it contain the same class of ore?—The CHAIRMAN: Yes, silver-lead.—In reply to a question with regard to the ironstone mines, the CHAIRMAN said they hoped to get about 25,000*l.* for them.

Mr. BRINSLEY NIXON remarked that that would place their capital in a very much more favourable position.

The CHAIRMAN added that the gallery which was being driven in the Aurora Mine was really the adit level.

General WYNNE said that when they purchased the Wuestseifen Mine there was a very rich vein there, but it appeared to have been pretty well worked out, and they had not lately been able to find the lode. He asked whether it was not worth while to follow the lode down?—The CHAIRMAN replied that sinking for the lode had been carried on, but it became poorer as depth was attained.

General WYNNE asked if they were well protected against water at Heidberg now?—The CHAIRMAN, in reply, said the mine was quite clear of water now. They were putting up another boiler. He thought the water must have come from some of the old workings, but this could not be ascertained until the mine was further developed.

Admiral STODDART asked if there were other mines in the district?—The CHAIRMAN said there were, but, owing to the depression, many of them were not being worked now.

The report and accounts were then unanimously adopted.

Mr. ENGELBERT had great pleasure in proposing "That Messrs. James R. Stewart, jun., and Brinsley Nixon be re-elected directors of the company."

Admiral STODDART seconded the proposition, which was carried, and the CHAIRMAN briefly returned thanks for the re-election of himself and his colleague.

On the motion of the CHAIRMAN, seconded by Col. WYNNE, Mr. E. Woodington was re-appointed auditor of the company.

On the motion of Admiral STODDART, seconded by Mr. ENGELBERT, the following resolution was passed, "That the thanks of this meeting be presented to the directors and manager for their services to the company during the past year."

The CHAIRMAN, in returning thanks for the compliment, hoped that at the end of the current year the directors would have a still more favourable report

to present to the shareholders. He thought when they contrasted their position with that of almost all other mining companies, that they had good reason to be satisfied with the state of their affairs.—The proceedings then closed.

HERBDSFOOT MINE.—At the meeting on Oct. 19 (Mr. Gould Sharp in the chair) the accounts for 16 weeks, to Sept. 18, showed a debit balance of 1480*l.* 6*s.* 2*d.* A call of 10*s.* per (3000*l.*) share was made, and the shares subdivided. There will henceforth be 12,000 shares. Capts. P. and J. A. Temby reported that notwithstanding the good prospects held out at the last general meeting they have been prevented from sampling about 130 tons of first and second quality ore in time for this meeting, owing to the crush of ground in the engine-shaft at and about the 70. During the past four months their operations have been principally confined to the three bottom levels—190, 205, and 215. They consider they have over 50 tons of silver-lead ore of the best quality and about 80 tons of second quality. For the first eight weeks they were completely dried up for want of water, and drawing machinery then depending on water-power a large quantity of stuff was allowed to accumulate underground while the steam whim was being erected, and just as they commenced to draw the stuff the crush referred to occurred in the engine-shaft, which compelled us to stop the pumping-engine for five days, and the water rose within 10 ft. of the 190, and considerable damage was done to the skiproad and footway by the falling stuff and broken timber. This has been repaired, and drawing resumed to-day, and they hope to sample in four or five weeks about the quantity named—130 tons of silver lead ore. Since the last general meeting the 24 in. steam-whim has been erected at a cost of over 500*l.*, which is paid for, and but for the crush referred to and the extra outlay they should have shown a profit on the four month's working. From the strong and well-defined lode below the 205, and the favourable indications they have there, and the fact that the reserves have greatly increased, now fully worth 18,000*l.*, their prospects for the future are most encouraging, and they calculate to pay all costs during the coming four months.

WEST PHOENIX MINE.—At the meeting on Oct. 18 (Mr. Richard Hawke in the chair) the accounts from the commencement to Sept. 4 showed a credit balance of 1347*l.* 17*s.* 7*d.*, which was carried forward to next account. Capt. John Holman congratulated the shareholders on having a very fine piece of mining ground quite beyond any other which he knows as yet unexplored. Since the engine has been at work good progress has been made in sinking the shaft at the rate of 5 ft. per week, with the ground equally good at present. This will enable them in a few weeks to intersect the lode seen in the adit, where it presented every indication of being as good as could be desired. When this is done the shaft will be turned on its course, which will enable them to prove it with greater facility, as well as to ascertain its value every fathom as they go down. The operations for the next few fathoms must necessarily be confined to the sinking of this shaft alone, which will be done with all possible speed, and as the lode is developed, they will be in a better position to advise when to drive on its course. Judging, however, from the appearance of it at surface, wherever seen, he does not doubt but what it will be found very valuable, and his own opinion is strengthened by hearing that one of the most productive ends in the western part of the adjoining (Phoenix Mines) is the one which is nearest this sett. Capt. R. Gluyas, reporting on the current operations, states that the ground seems more favourable, showing indications that the lode is near. According to the angle of lode seen in the shallow level, about 2 fms. more they ought to intersect the lode, where they hope the results will be good. The men in the deep cutting are making good progress; this being completed will be of great advantage to the mine, as it will take away all the surface water in the eastern part of the mine. What they have seen of the lode in the sett and what they hear of their nearest neighbour gives them every reason to believe they have a property in West Phoenix second to none in Cornwall.

MARKE VALLEY.—At the meeting at Salisbury, on Oct. 22 (Mr. W. Bellingham in the chair), the accounts to date showed a debit balance of 714*l.* 14*s.* 8*d.*, and a balance of liabilities over assets of 142*l.* 9*s.* 8*d.* A call of 2*s.* 6*d.* per share was made. Capts. George and Stenlake reported upon the various points of operation. They have at present six stoves working by 24 men, yielding in the aggregate 18 tons of ore per fathom, and eight tribute pitches by 19 men, at from 12*s.* 6*d.* to 13*s.* 4*d.* in 1*f.*

WHEEL SISTERS.—At the meeting on Wednesday, Capt. Rosewarne stated there were 123 men on tribute in the mine, and 114 on tutwork. He added that with six men in the 22*s.* they had driven in the last five months at least 8 fms. a month. In the past month they had driven 10*1/2* fms.

[For remainder of Meetings, see to-day's Journal.]

SOUTH INDIAN GOLD MINING COMPANY.

The following is a copy of a letter from Capt. W. Gifford to the South Indian Gold Mining Company, dated Devalah, Sept. 27:—

In No. 2 tunnel we have suspended the cross-cut, and have put the labourers to drive east and west on No. 1 reef, which is from 8 to 9 ft. wide. These points of operation are being continued by night as well as by day. The labourers are working satisfactorily, and I intend to push on with all possible speed, so as to lay open the reef for stoning, in order to give a good supply of quartz for the mill (or reduction works). I am sanguine as soon as the reduction

ness and gentleness which will make it attractive to the least as much as to the most highly cultivated; whilst the fact that it will prove equally acceptable and agreeable whatever may be the reader's sect or creed, justifies the prediction that the second edition which has now been reached will not be the last. Apart from the pleasure which the volume will afford, it may safely be said that no one will read it without deriving instruction and advantage.

Registration of New Companies.

The following joint stock companies have been duly registered:

THE LONDON DECORATING COMPANY (Limited).—Capital 100,000*l.*, in shares of 5*l.* To carry on the business of designers, decorators, and contractors, dealers in paints, varnishes, colours, pictures, &c. The subscribers (who take one share each) are—Lord Wallscourt, WallsCourt; W. Crane, Shepherd's Bush; J. N. Fazakerley, Folkestone; A. N. Sherson, 3, Coleraine-road; E. Pollard, 9, King's Bench Walk; W. Gundry, Sidcup; C. L. Davis, Sevenoaks.

THE WINSLOW NEW GAS COMPANY (Limited).—Capital 5000*l.*, in shares of 10*l.* each. To construct works at Winslow and carry on the business of a gas company. The subscribers are—G. R. Greaves, Winslow, 50; J. King, Winslow, 10; J. King, Winslow, 20; A. Bartron, Winslow, 17; H. Ingram, Winslow, 5; J. M. Smith, Winslow, 5; F. Roads, Winslow, 5.

THE SHEFFIELD FISH COMPANY (Limited).—Capital 5000*l.*, in shares of 10*l.* Purchasing, selling, and dealing in fish, game, poultry, ice, &c. The subscribers (who take one share each) are—J. Nicholson, Sheffield; E. T. Moore, Sheffield; F. Fowler, Sheffield; E. Dodson, Sheffield; W. H. Watson, Sheffield; F. G. Shuttleworth, Sheffield; T. W. Baden, Rotherham.

THE LIVERPOOL CATHOLIC SOCIAL CLUB (Limited).—Capital 30,000*l.*, in shares of 12*l.* To establish and carry on a club in Liverpool. The subscribers are—T. Kelly, Liverpool, 10; W. E. Roberts, Liverpool, 10; F. J. McAdam, Liverpool, 100; J. P. Solari, Liverpool, 50; G. M. Payne, Monkstown, 100; G. Chamberlain, jun., Liverpool, 10; J. Walwork, Liverpool, 10.

THE "LABARRONE" STEAMSHIP COMPANY (Limited).—Capital 22,000*l.*, in shares of 220*l.* To carry on the business of a steamship owner in all branches. The subscribers (who take one share each) are—T. Morel, Penarth; W. B. Gibbs, Cardiff; P. Morel, Cardiff; J. A. Gibbs, Cardiff; W. Lewis, Cardiff; B. J. Gibbs, Cardiff; P. W. Macline, Cardiff.

YORK AND LANCASTER UNITED MINES COMPANY (Limited).—Capital 25,000*l.*, in shares of 17*l.* To acquire by purchase certain property, machinery, plant, materials, and mining rights in Yorkshire and Lancashire known as the York and Lancaster United Mines, situate in the townships of Rimington (in Craven) and Downham, in accordance with the terms of an agreement made between R. D. Steele on the one part, and T. R. Lambert on behalf of the company. To work and let these and any other mines and minerals, to smelt and sell the ores and minerals, and generally to carry on the business of a mining and smelting company in all branches. The subscribers (who take one share each) are—T. R. Lambert, Liverpool, clerk; J. L. Palmer, Liverpool, book keeper; J. R. R. Keane, Liverpool, civil engineer; C. Cooper, New Jersey, engineer; J. Nancarrow, Liverpool, mining engineer; W. F. Dunsford, Liverpool, stationer; D. A. Fox, Liverpool, broker. The following are the first directors:—Messrs. Keane, Nancarrow, Fox, T. Dineen, W. Bowman, and Capt. D. Williams; the number must not exceed seven, or be less than two, the qualification being fixed at 50 shares.

THE SILVER PEAK MINING COMPANY (Limited).—Capital 250,000*l.*, in shares of 1*l.* To purchase or otherwise acquire lands, estates, mining rights, minerals, and other properties in North America or elsewhere, and to adopt and carry into effect an agreement made between E. J. Pratt and J. F. Harrison on the one part, and F. Coppin as trustee for the company. To carry on the business of miners, smelters, and reducers of ores and minerals, and all operations connected therewith and for the purposes thereof to erect all buildings, furnaces, machinery, and other appliances, so as to render the minerals and metals more commercially valuable, and to sell the same. The subscribers are—F. Coppin, Camberwell, no occupation, 1000; J. Wright, Shepherd's Bush, merchant, 1000; J. W. Coppin, Sackville-street, 200; J. A. Addesbury, Oxon, mining engineer, 1000; H. Garratt, Osterley-road, commercial traveller, 100; A. Bennett, Bromley, gentleman, 100; J. Mackentier, Tudor-street, engineer, 50. The subscribers shall be the first directors, the number of whom must not be less than three or more than seven; 1000*l.* per annum to be divided among the members of the board.

THE SCREW STEAMER "TYNE" COMPANY (Limited).—Capital 12608*l.*, in shares of 19*l*. To carry on a shipowner's business in all branches. The subscribers (who take one share each) are—J. Fisher, Newcastle; G. Fenwick, Newcastle; G. Miller, 29, Addison-road; G. T. Brace, Seven Sisters-road; D. Barman, 70, Fore-street; E. Clark, 112, Fenton-road; J. Troutbech, 4, Dean's-yard.

THE EMPLOYERS LIABILITY ASSURANCE CORPORATION (Limited).—Capital 1,000,000*l.*, in shares of 20*l.* To grant, make, and effect insurances for the protection of principals and employers. The subscribers (who take one share each) are—S. Watson, 12, Bouvierie-street; A. Harper, Billiter House; A. Watson, 60, Queen Victoria-street; L. Salmons, 125, Piccadilly; G. D. De Bevery, 91, Watling-street; F. B. Smith, 10, Gloucester-crescent; J. Alexander, 27, Chancery-lane.

THE OOREGUM GOLD MINING COMPANY OF INDIA (Limited).—Capital 125,000*l.*, in shares of 1*l.* To adopt and carry into effect an agreement made between G. B. Duncan and T. W. Martin for the purchase and acquisition of gold mines and mining rights in India. To work the gold diggings, mines, and reefs under or upon the estates of the company, and any other gold mines, diggings, reefs, minerals and mining rights which may from time to time come into the possession of the company, and generally to carry on the business of gold mining in all branches. The subscribers (who take one share each) are—L. S. Northcote, Lyminster, Captain 39th Regiment; D. Andrew, 16, Philipott-lane, merchant; H. Duncan, 1, Draper's Gardens, merchant; W. McArthur, 150, Gracechurch-street, merchant; J. C. S. McLay, East Greenwich, merchant; P. L. Ross, 61, West India Dock-road, railway contractor; J. Mackenzie, 150, Leadenhall-street, merchant. Messrs. Northcote, Andrew, J. C. Bayley, and W. McAdam Stewart form the first board of directors, each member qualifying in 100 shares. Future directors will have to qualify in 250 shares. The number is not to exceed seven or be less than three.

THE IMPERIAL STEAM LAUNDRY COMPANY (Limited).—Capital 10,000*l.*, in shares of 12*l.* To purchase and continue the business of the Imperial Desborough Steam Laundry in London or elsewhere. The subscribers (who take one share each) are—C. G. Baldwin, St. Mark's-road; W. R. Baldwin, Kentish Town; G. Stevens, 50, Oxford Gardens; J. Pomeroy, 7, Howard-street; H. Blowers, 6, Red Lion-square; C. J. Dunkley, Brixton; J. S. Prideaux, 35, Queen Victoria-street.

THE ASSOCIATED PROPRIETORS OF LAND AND HOUSE PROPERTY (Limited).—Capital 200,000*l.*, in shares of 2*l.* To carry on the businesses of a land and building society in all branches. The subscribers (who take 50 shares each) are—W. R. Lennox, 34, Hans-place; H. D. Marsh, 52, Elizabeth-street; A. J. Kane, 39, Lombard-street; W. T. Huxley, Brixton; H. J. Stevenson, Liverpool; C. H. Rutherford, Kingsland; G. Score, 8, Craig's-court.

THE RUMNEY VALLEY COLLIERIES COMPANY (Limited).—Capital 50,000*l.*, in shares of 50*l.* To purchase or otherwise acquire the Rudy Colliery, and also the Barnewall of Windsor Colliery, situated in the parish of Machen, Glamorgan, and the Clyn Gwyn Colliery, situated in the parish of Bedwas, Monmouth, together with the railways, tramways, machinery, plant, fixtures, stock, and other effects connected therewith. To carry on the business of miners, mine, and coal owners, coke makers, iron masters and founders, smelters, engineers, steel converters and manufacturers, brick and tile makers, &c. The subscribers (who take one share each) are—J. J. Stanfield, 10, Bush-lane, accountant; G. Lawson, Moorgate Station Buildings, accountant; J. Parkinson, 36, New Broad-street, mineral agent; A. Beattie, 45, Porchester-terrace, physician; C. Bolme, 110, Cannon-

street, secretary; J. B. Rogers, St. Clement's House, engineer; C. A. Beattie, 45, Porchester-terrace, gentleman. The subscribers to appoint the first directors, whose number must not exceed five or less than two.

SAMUEL RADCLIFFE AND SONS (Limited).—Capital 420,000*l.*, in shares of 100*l.* To acquire by purchase or otherwise the business of cotton spinners, manufacturers, and merchants at Rochdale, Oldham, and Manchester, and continue the same. The subscribers (who take five shares each) are Joshua Radcliffe, Rochdale; James Radcliffe, Wetherby; T. H. Radcliffe, Oldham; H. Radcliffe, Rochdale; W. Radcliffe, Rochdale; F. Radcliffe, Rochdale; J. A. Radcliffe, Rochdale; J. B. Radcliffe, Rochdale.

LANDPORT CARPET AND FURNISHING EMPORIUM COMPANY (Limited).—Capital 30,000*l.*, in shares of 50*l.* To acquire and carry on a carpet and furnishing business at Landport. The subscribers are—R. E. Davis, Cosham, 100; J. Isard, 68, Holland-road, 50; R. Pincock, Newport, WallsCourt; W. Crane, Shepherd's Bush; J. N. Fazakerley, Folkestone; A. N. Sherson, 3, Colesherne-road; E. Pollard, 9, King's Bench Walk; W. Gundry, Sidcup; C. L. Davis, Sevenoaks.

CLARK, BUNNELL, AND COMPANY (Limited).—Capital 60,000*l.*, in shares of 10*l.* To acquire and carry on a business in London of a revolving shutter manufacturer, general ironfounder, and lift maker. The subscribers are—A. Clark, Taplow, 5; A. M. Barrow, 4, Cleveland-square, 1; A. G. Clark, Taplow, 1; W. Barrow, 4, Cleveland-square, 5; G. Newington, East Dulwich, 1; H. D. Blyth, 157, Fenchurch-street, 5; H. Barrow, 91, Westbourne-terrace, 1.

THE AUSTRALIAN METAL TRADE.

The following is an account of tin, copper, &c., shipped from the port of Sydney for London during the month ending Aug. 31, 1880:—

Ships.	Quantity.	Packages.	Weights.	Consignees.
Garonne	1,451	Ingots, tin	t. c. q. lb.	Order.
ditto	1,154	ditto	50 0 0 0	ditto
ditto	3,183	ditto	25 0 0 0	ditto
ditto	1,453	ditto	115 2 0 0	ditto
ditto	226	ditto	50 0 0 0	ditto
ditto	325	ditto	8 0 0 0	ditto
Kaisar I. Hind	1,447	ditto	7 1 2 10	ditto
ditto	397	ditto	50 0 0 0	D. Cohen & Co.
Potosi	1,441	ditto	7 10 2 0	Order.
ditto	2,308	ditto	50 0 0 0	Mort & Co.
ditto	1,454	ditto	50 0 0 0	ditto
ditto	2,328	ditto	80 0 0 0	ditto
ditto	600	ditto	20 3 0 0	ditto
ditto	1,453	ditto	5 0 0 0	ditto
Chimborazo	1,858	ditto	16 5 3 19	D. Cohen & Co.
ditto	1,485	ditto	40 3 1 0	Order.
ditto	2,895	ditto	100 0 0 0	ditto
ditto	1,489	ditto	50 0 0 0	ditto
ditto	605	ditto	20 1 0 0	C. Newton Bros.
	31,199		987 16 1 1	
Garonne	10,065	{ Ingots, copper		Order.
	1	1 Cake	100 0 0 0	ditto
ditto	689	1 Cake	31 7 2 14	ditto
ditto	191	1 Ingots		ditto
Kaisar I. Hind	16,493	1 Ingots	1217 5 0 0	ditto
ditto	19	1 Cake		ditto
Potosi	861	Ingots	5 3 0 0	C. Newton Bros.
Linares	1,057	Cake	22 7 0 0	Order.
Chimborazo	692	Ingots	4 3 0 0	C. Newton Bros.
ditto	1,771	Ingots	13 19 0 20	Order.
ditto	10,324	Ingots	107 5 0 0	ditto
	42,153		1497 9 3 6	
Garonne	580	Bags, pyrites	18 0 0 0	Order.
Potosi	5	Casks, pyrites	1 2 0 0	C. Newton & Co.
ditto	1	Bag, pyrites		
	586		19 2 0 0	
Garonne	37	{ Cases, nickel	6 10 0 0	C. Watson.
ditto	170	1 Ingots, nickel		ditto
Potosi	15	1 Cases, nickel	15 10 0 0	ditto
ditto	688	1 Ingots, nickel		ditto
Chimborazo	12	1 Cases, nickel	10 0 0 0	ditto
dito	443	1 Ingots, nickel	32 0 0 0	ditto
	1,335			
Chimborazo	32	Bags, tin ore	1 9 0 0	Order.

FOREIGN MINES.

ST. JOHN DEL REY.—Telegram from Morro Velho, dated Rio de Janeiro, Oct. 23; Produce eleven days (first division of October), 7750 oits.=3003*l.*; yield, 5-8 oits. per ton. Every hand that can be employed on the work now engaged in preparing hauling machinery. Rains have set in.

SANTA BARBARA (Gold).—Mr. W. H. Richards, Pari, Sept. 14; During August 873 tons of mineral were stamped—785 tons of general stone and 85 tons of inferior ore. The 785 tons of general mineral produced 3258 oits., and 132 oits. were obtained from the extra strakes, making a total of 3290 oits. of gold, or equivalent to an average of 4-318 oits. per ton of stone stamped of this class of ore. The 85 tons of inferior and unpicked ore stamped produced 205 oits., or equivalent to 2-229 oits. per ton, giving a total produce for the month of 3395 oits. of gold, which, valued at 82.6d. per oit., amounts to £1277. 17s. 6d., and the estimated working cost for the month, at exchange 23*d.*, being 1269*l.* 3*s.* 5*d.* leaves an estimated profit of £258. 14*s.* 10*d.* for August. In addition to the above mine working in respect of additional house accommodation and construction of the new water course. Mr. Richards reports that the operations for August showed a decrease in the quantity of stone treated, as compared with the previous month, of 179 tons, owing to the short supply of water for driving the stamping mills, but the total produce showed a falling off of 193 oits. only compared with July, by reason of an improvement in the average yield of the stone stamped. The mine captain reports as follows for August:—The quantity of ore raised during the month amounted to 1115 tons, of which 242 tons were rejected at the stamping floors as refuse stone, and 873 tons, or per hole bored 50 tons to the shaft, and the ore raised for the month, 27-87 tons, or per hole bored 50 tons to the shaft.

RUBY AND DUDDERBERG CONSOLIDATED.—Report on above mines for the week ending Oct. 3: The 600 ft. level has been commenced and continued 15 ft. from the shaft; in the interior the shaft is being timbered, but no sinking done this week. The north winze below the 500 is now down 54 ft., and progresses this week 18 ft. The winze at south stopes is now down 35 ft., the ore is about 2*1*/₂ ft. wide, of good quality. The 500 south is making good headway towards the ore body at the end of the drift above and east of the 500; progress this week in the quantity of stone treated, as compared with the previous month, of 179 tons, owing to the short supply of water for driving the stamping mills, but the total produce showed a falling off of 193 oits. only compared with July, by reason of an improvement in the average yield of the stone stamped. The mine captain reports as follows for August:—The quantity of ore raised during the month amounted to 1115 tons, of which 242 tons were rejected at the stamping floors as refuse stone, and 873 tons, or per hole bored 50 tons to the shaft, and the ore raised for the month, 27-87 tons, or per hole bored 50 tons to the shaft.

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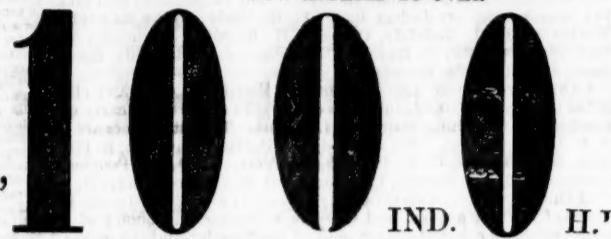
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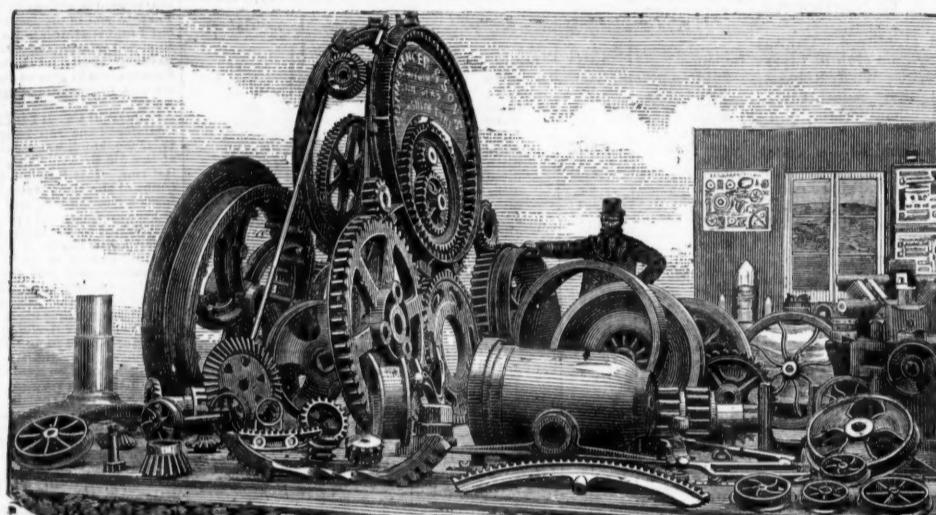
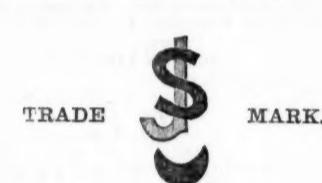
NOW APPLIED TO OVER



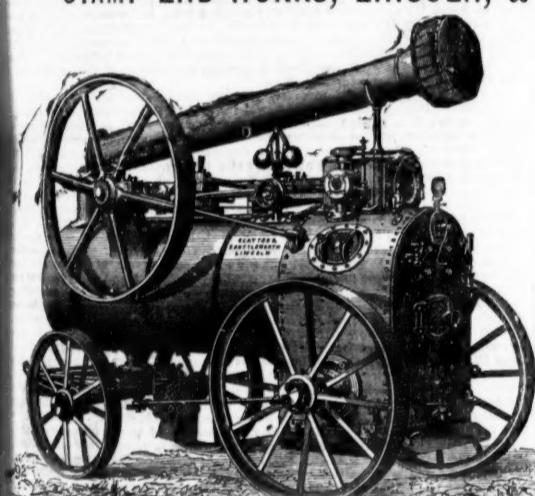
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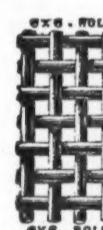
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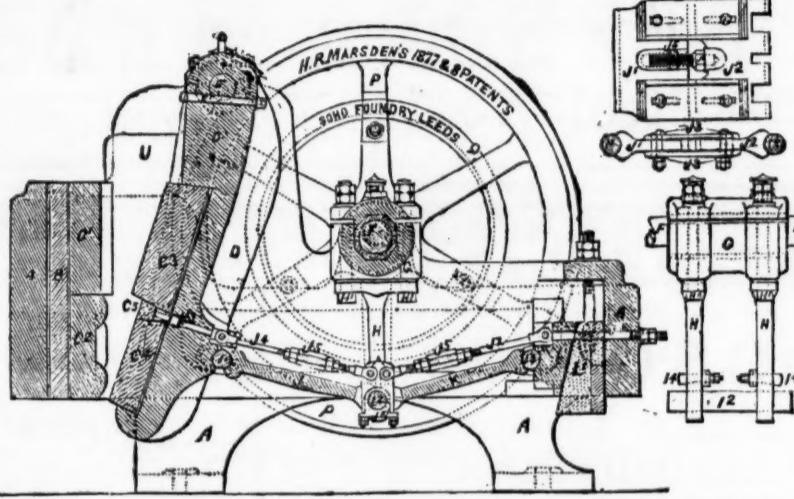
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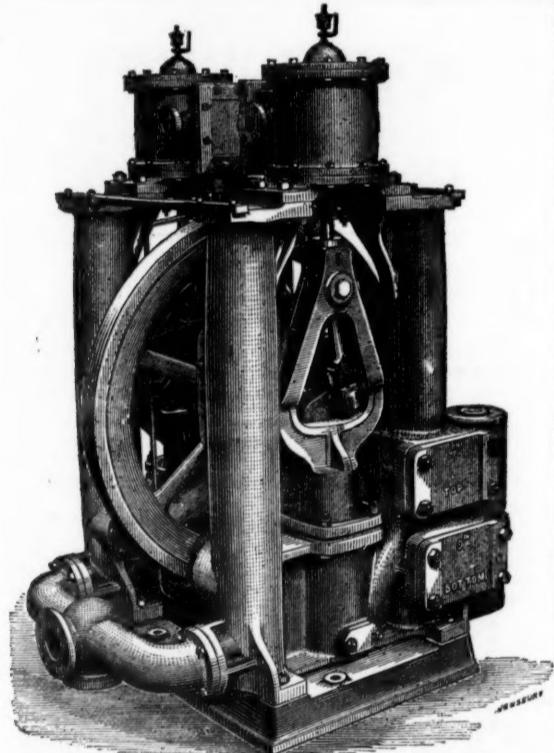
BLAKE'S STONE BREAKER.—Statement made by the Managing Director of the St. John del Rey Mining Company, Mr. John Hocklin, with regard to six months' practical working of Blake's Stone Breaker, affording facility for judging of the relative economy of machine and hand labour in this kind of work, and also of the cost of getting the Stone Breaker to work in difficult places. The price paid to Mr. Marsden for the machine referred to by Mr. Hocklin was £150, and adding to this the cost of engine, carriage, and fixing, the aggregate cost to the company of the Breaker in working order was £500. By this means the company is enabled to dispense with the labour of 15 people, the value of which is £800 per annum. The cost of working the machine could not be more than the wages of about five men (the machine requires but one man to feed it, so that the rest would be for engineer, fuel, oil, &c.), and allowing for interest on outlay and for removal when necessary, the saving must be enormous.—Mining Journal.

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